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## LECTURES
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## MEDICAL JURISPRUDENCE,
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### LECTURE XLV.

NARCOTIC POISONS:—*Their mode of operating. Post-mortem appearances produced thereby. Diseases which may simulate poisoning by narcotics. Diagnostic symptoms between such diseases and the effects of narcotics.*—OPIUM. *Extent of its influence over the vegetable and animal kingdoms. Occasions on which opium is commonly employed as a poison. Children often accidentally poisoned by opium. Bad effects of opium-eating. Great consumption of this poison in England. Different stages of the symptoms produced by opium, as a poison. Post-mortem appearances. Chemical evidence of its presence. Active principles in opium.*—MORPHIA; ITS SALTS, AND MECONIC ACID. *Tests for them. Treatment in cases of poisoning with opium, &c. Absence of opium, though administered, in the stomach. Its presence in the urine questioned.*

HYOSCYAMUS. *Accidental poisoning with the plant henbane. Its external characters. Treatment.*—LACTUCA VIROSA, *the* SOLANACEÆ, AND COCULUS INDICUS. *Poisoning therewith.*

## NARCOTIC POISONS.

GENTLEMEN:—This class of poisonous agents is almost exclusively drawn from the vegetable kingdom; for, although some of the mineral poisons display narcotic effects, as the result of a secondary action on the animal system, yet narcotics produce none of those topical appearances in the tissues which characterise the operation of the mineral poisons. Narcotic poisons neither irritate powerfully, nor inflame much the tissues with which they come in contact; nevertheless, the fatal issue which follows their employment is as certain, and as rapid, as that which is caused by the irritant poisons. We cannot determine satisfactorily the cause of the fatal effect, for frequently the dissection of the body, even when it takes place as soon after death as it can be effected, displays no appearance of any morbid change in the tissues, which can account for death.

Before describing their mode of action it may be necessary to state my reasons for disjoining them from the sedative poisons, namely, hydrocyanic acid, and the sedative gases. I have separated *sedatives* from *narcotics*, because the action of the former, in doses sufficient to prove poisonous, is productive of an immediate depression of the nervous energy, without any previous excitement; whereas the effects of a narcotic are the result of a previous excitement, producing, by an indirect degree of exhaustion, a state of decided collapse. Hence the depression caused by a sedative is immediate, and from an unknown cause; that of a narcotic is secondary, the result of a well known cause, namely, a condition of previous excitement. Under such a view of the subject, I have ventured to make two distinct classes of *narcotics* and *sedatives*.

Narcotic poisons operate solely on the brain or the spine, or on the whole nervous system; the symptoms which they cause are headach, vertigo, stupor, or insensibility, paralysis, or convulsive action of the voluntary muscles, and, previous to death, the deepest coma.

They probably enter the circulation, and thus are conveyed to the nervous centres, upon which they at once operate; but it is equally probable that their direct influence is first felt on the nerves of the tissues to which they are applied, and the impression is afterwards communicated by sympathy to the whole nervous system. The truth of this opinion is not altered by the fact, that they operate more forcibly and rapidly when they are directly conveyed into the circulation, as by that means the extent of their direct influence is undoubtedly increased.

The post-mortem examination of the body displays little or nothing to account for the

symptoms; but, occasionally, congestion of the cerebral veins is perceived, and fluid is found in the ventricles, and between the pia mater and the arachnoid membrane.

The symptoms caused by the action of narcotics so closely resemble those of some diseases, that the diagnosis of poisoning by them is more obscure than that of any other class of poisons. The diseases which they chiefly simulate are apoplexy, epilepsy, some kinds of asphyxia, softening and hypertrophy of the brain, and some affections of the spinal cord. Let us endeavour to point out in what respects the features of these diseases differ from those of cases of narcotic poisoning.

With respect to apoplexy:—

1. There are symptoms which generally, although not invariably, more or less indicate the approach of that disease: these are absent in cases of narcotic poisoning.

2. The attack of the disease, when it actually occurs, is sudden; the full force of it is at once apparent, and the violence of the symptoms does not increase, whereas the symptoms of narcotic poisoning approach gradually, and in their appearance and in their progress, they invariably augment in intensity.

3. However fatal the consequence of narcotic poisoning may prove, the persons poisoned by them may be roused for a few seconds, although they again pass into the comatose state; and this may be effected until a few minutes before death takes place: but no such rousing can be effected in apoplexy, at any period of the attack, unless the symptoms be subdued by the remedial means applied.

4. An attack of apoplexy, which proves fatal, may be extended for twenty-four hours, or even longer; in many cases, however, the attack is instantly fatal:—the person falls, and never again moves. Neither of these periods of termination is characteristic of narcotic poisoning: the attack is never instantaneous,* and life is seldom protracted beyond ten or twelve hours.

5. The effects of narcotic poisoning may be experienced at every period of life, whereas apoplexy, although it has occurred in children* and young people, yet it rarely attacks until a man has advanced beyond the middle period of life; and, more generally, it may be regarded as the disease of persons of advanced age.

In cases of nervous apoplexy, in which no blood is poured out, either into the cavities or the substance of the brain, or upon its surface, little advantage in determining the diagnosis is obtained from the post-mortem examination of the body, when any doubt exists as to the fact of apoplexy or narcotic poisoning being the cause of death. In poisoning by narcotics, as in congestive apoplexy, congestions exist, and often serous effusions. It is only when extravasation is found that post-mortem examination aids our diagnosis.

The distinguishing features of epilepsy and narcotism are more evident. The epileptic fit, even when it is preceded by none of those creepings and warning symptoms which often attend it, is itself, in the abruptness of its attack, totally different from any thing which results from the influence of narcotics upon the habit. In general, it commences with that peculiar scream which, when once heard, can never be forgotten: the deep sleep, also, which accompanies epilepsy, and from which nothing can rouse the patient, has no example in any case of narcotic poisoning. Finally, the disease rarely or never is fatal, in the first attack. Indeed, it appears to me singular that this disease should have been put down as one, the symptoms of which could be mistaken for those of narcotic poisoning.

With respect to asphyxia, the circumstances of the cases are generally sufficient to enable us at once to pronounce an opinion; nevertheless, that form of asphyxia which has been termed *syncopal*, has been peculiarly supposed to simulate narcotic poisoning. It, however, differs from it in one essential particular, namely, the suddenness of the attack.

Hypertrophy and softening of the brain in some features resemble narcotic poisoning, but the primary symptoms differ from those of narcotic poisoning; in the latter they are evidently inflammatory; the paralysis and derangement of intellect which characterise the second stage do not come on so rapidly as in narcotic poisoning. The delirium which accompanies the first period of inflammatory softening of the brain diminishes, or altogether disappears, when the second stage sets in, whereas that of narcotic poisoning increases. In some respects they resemble one another, namely, in the suspension of the delirium as the coma and paralysis supervene, and in the difficulty of exciting vomiting. But inflammatory softening of the brain rarely runs its course in less than from two to three days; more commonly it extends from five to eight days; when persons poisoned by narcotics live beyond twelve hours they generally recover.

According to my arrangement narcotic poisons comprehend *opium, henbane, lactuca virosa*, &c.

### OPIUM.

The most important of the narcotic poisons is opium, to it, therefore, Gentlemen, I shall first direct your attention.

It is unnecessary to inform you that opium is the inspissated juice of the Papaver *somniferum*, and that it owes its narcotic powers chiefly to the meconate of morphia;

* London Med. and Phys. Journ., vol. xlvii., p. 181. I once saw apoplexy in a boy twelve years of age.

it is equally unnecessary in this place to treat of the other components of this important article of the Materia Medica, or of its medicinal powers.

The toxicological influence of opium is not confined to the animal kingdom: vegetables feel it, and die on the application of its solution to them in a growing state. It is a poison for every kind of animal, from the lowest zoophyte up to man. So far as regards man, opium is the most commonly employed of all the poisons by the suicide. The timid have been characterised as those who resort to it, to accomplish self-destruction; but it is not always so: there are numerous instances to the contrary. It is, indeed, not the dread of pain, but the oblivion of thought—which is supposed to occur as a prelude to death—that leads to its employment.

"To die—to sleep—no more!
And by a sleep to say we end
The heart-ach, and the thousand natural ills
That flesh is heir to. 'Tis a consummation
Devoutly to be wished."

Opium has, occasionally, been employed by the murderer, but very rarely so. CASTAING, a French physician, was tried, convicted, and executed, for poisoning by means of acetate of morphia.

It has more frequently been employed for other criminal purposes, namely, to facilitate robbery and rape. In one instance of the former kind, where it was given to facilitate robbery, the person died, and those who administered the drug, a man of the name of STEWART, and his wife, were tried, convicted, and executed for the crime. This happened so lately as the year 1829, in Scotland.

Many and fatal accidents have occurred with opium, in cases where large doses have been given by mistake: several have come under my own eye.

Children are often destroyed by lazy nurses giving them syrup of poppies, Godfrey's cordial, and other empirical medicines containing opium. In Dr. CLARK's Reports from the General Hospital, near Nottingham, we are informed that upwards of 200lbs. of opium, and 200 pints of Godfrey's cordial, are retailed to the poorer classes in Nottingham in the course of every year. Indeed, the extent to which opium eating and laudanum drinking is carried in England, is well known to London druggists.

On no narcotic has custom so powerful an influence in modifying the effects. Among the Turks, grs. 60, in lozenges, combined with aromatics, are often taken at a sitting. Dr. SMITH informs us that he has seen ʒiij. swallowed at one sitting by a Turk, with no other effect than an increase of his cheerfulness.

In the Theriaky Tcharchiffy, or Opium Bazaar of Constantinople, opium-eaters assemble daily to indulge in the luxury of his narcotic. The opium is administered in the form of pill, with a glass of water. In a short time, generally about forty minutes, feelings of a most agreeable description are experienced; the face, which was previously pale and haggard, becomes flushed, the eyes sparkle, and the expression of the countenance assumes a wild, unnatural aspect, and the tongue discourses most eloquently. This state of bliss, however, is transitory; the result is one of the most extreme misery, and health and life both become the sacrifice. The pallid countenance, the emaciation, the tremors which precede the close of life,—the severe pains,—the insatiable satyriasis, and impotency in satisfying it,—the gums decaying,—the teeth dropping out,—the shaking palsy,—and the scarcely real existence of the opium-eater long before he dies,—demonstrate the effects of this practice on the constitution. A theriakim, or opium-eater, who begins at twenty, rarely lives to thirty-six years of age. The quantity taken by different opium-eaters varies greatly. MUSTAPHA SHATAAR took daily ʒiij. of opium: he could not rise without taking ʒss. of the drug. We are informed, in the "Confessions of an English Opium-eater," that the author took 8000 drops of laudanum, equal to 320 grains of opium, every day, for three years; and, what is remarkable, after this he reduced his dose to 1000 minims, or 40 grains daily, without any bad effect, a circumstance which can rarely be effected in so sudden a manner.

Dr. JONES, in the "Mysteries of Opium Revealed," mentions it as a fact, that many persons in England take from ʒj. to ʒvj. daily.

I knew a lady who took regularly two pints of laudanum, the officinal tincture of opium, weekly. She applied to me for advice, how she could cure herself of this habit: I recommended her to get a gallon bottle of the tincture, and take her usual dose, but to put a glassful of water into the bottle for every glassful of laudanum which she took out of it. The plan succeeded to a certain point wonderfully; but her son having been killed at the siege of Algiers, she returned to her solace, and I lost sight of her.

The following anecdotes are related by Mr. MOREWOOD, in his Essay on "Inebriating Liquors":—

"An English ambassador, lately sent to a Mahometan prince, was conducted, upon his arrival at the palace, through several richly-decorated and spacious apartments, crowded with officers, arrayed in superb dresses, to a room, small in dimensions, but ornamented with the most splendid and costly furniture. The attendants withdrew. After a short interval, two persons, of superior mein, entered the saloon, followed by state bearers, carrying under a lofty canopy a litter covered with delicate silks and the richest Cashmere shawls, upon which lay a human form to all appearance

dead, except that its head was dangling loosely from side to side, as the bearers moved into the room. Two officers, holding rich filagree salvers, carried each a chalice, and a vial containing a black fluid. The ambassador, considering the spectacle to be connected with some court ceremony of mourning, endeavoured to retire; but he was soon undeceived by seeing the officers hold up the head of the apparent corpse, and, after gently chafing the throat, and returning the tongue, which hung from a mouth relaxed and gaping, they poured some of the black liquor into the throat, and closed the jaws until it sank down the passage. After six or seven times repeating this ceremony, the figure opened its eyes, and closed its mouth voluntarily; it then swallowed a large portion of the black fluid, and, within the hour, an animated being sat on the couch, with blood returning into his lips, and a feeble power of articulation. In the Persian language he addressed his visitor, and inquired the particulars of his mission. Within two hours this extraordinary person became alert, and his mind capable of arduous business. The ambassador, after apologizing for the liberty, ventured to inquire into the cause of the scene which he had just witnessed. 'Sir,' said he, 'I am an inveterate opium taker; I have, by slow degrees, fallen into this melancholy excess. Out of the diurnal twenty-four periods of time I continually pass eighteen in this reverie. Unable to move, or to speak, I am yet conscious, and the time passes away amid pleasing phantasies; nor should I ever awake from the wanderings of this state, had I not the most faithful and attached servants, whose regard and religious duty impel them to watch my pulse. As soon as my heart begins to falter, and my breathing is imperceptible, except on a mirror, they immediately pour the solution of opium into my throat, and restore me as you have seen. Within four hours I shall have swallowed many ounces, and much time will not pass away ere I relapse into my ordinary torpor.'

"The effects of opium might be instanced in many ways, but we do not recollect a more singular one than the following, mentioned by Mrs. Gutherie, who, writing to her husband from Eupatoria, remarks that she observed at a Tartar mosque a sort of holy wheel, composed of whirling fanatics, who, having indulged in the use of opium, kept flying round in a circle, more like the votaries of Bacchus than the disciples of Mahomet:—In the middle of the circle an aged dervise turned round like a top, muttering all the while, in concert with his brethren in the circle, the following maxim from the Koran:—'This life is precarious; but it is here (pointing to the earth) that we must take np our abode.' The centre of this curious group is always the place of honour, and of danger, as the reverend father, who occupies it, in right of his years and wisdom, keeps spinning round till he turns his brain, and if he expires on the spot, which sometimes happens, he becomes a martyr saint of the Mahometan church, and the envy of his surviving stronger-headed companions."

The consumption of opium in England in fifteen years was 247,519lbs., nearly 16,508lbs. per annum.

When opium is taken as a poison, the following are the symptoms:—First stage—Slight nausea, occasionally, but rarely, vomiting; giddiness, stupor, which sometimes supervene without any previous stimulus; but this depends much on the extent of the dose. In a case which came under my care, there was a full, hard pulse. The individual soon displays insensibility to all external impressions; he breathes slowly, lies on his back, with his eyes closed, and the whole expression is that of natural sleep; when the eye is examined the pupils are seen to be contracted, although occasionally they are dilated. They are always sluggish in acting.

Second stage.—As the influence of the poison proceeds, the face becomes flushed; there is copious perspiration, profound lethargy, and the breathing is sometimes stertorous, but more generally it is natural, and so soft as to be scarcely perceptible. The expression of countenance, although most commonly natural, yet is sometimes anxious: in a few cases, it has been furious. The pupils, in this stage, in a few instances, are greatly dilated; but more generally they are in the opposite condition, contracting to a pin's head. The lethargy, in this stage, is never so great as to prevent the patient from being roused by dashing cold water on his face and chest; but the sensibility thus produced is momentary only. The pulse in this stage becomes rapid, feeble, contracted, and imperceptible, or irregular: when sopor comes on it always sinks.

Third stage.—As the symptoms proceed, the countenance becomes pale, ghastly, and cadaverous: all the muscles are relaxed. Convulsions are rare, except in children, but they occasionally occur; even trismus has followed. In the "Journal Universal," a case is recorded of a soldier who took two drachms of solid opium, and died in six hours and a half, with locked-jaw and spasms. In another case, published in the thirty-first volume of the "Medical and Physical Journal," opisthotonos supervened. Other cases of a similar kind might be quoted. Convulsions are certainly rare.

As the pulse sinks, and the muscles relax, cold, clammy sweats, irregular snatches of respiratory efforts, take place just before death ensues. If death do not follow in twelve or fifteen hours, the trembling of the

members gradually diminishes, the coma becomes less profound, the patient more sensible, and at length he is capable of answering questions addressed to him. The heat of the surface is also gradually re-established, and the symptoms of returning health become more and more obvious, until the person seems as if he suddenly awoke from a dream, and he considers that his sleep has been of very short duration.

It is of much importance to distinguish between the sopor and lethargy which occur in poisoning by opium, and those which are symptomatic of disease. In one particular the diagnosis is very obvious, namely, in the possibility of rousing the patient, if death be not very near at hand.

It is also important to be aware of the diagnosis between the sopor present in cases of poisoning by opium and that of other narcotics. In cases of poisoning by hyoscyamus, there is more delirium than in those by opium, and it is of that mixed character which has been termed typhomania. Belladonna produces wild delirium, accompanied with uncontrolable fits of laughter and antic gesticulation, whilst there is little or no coma. Stramonium causes delirium, closely resembling that of belladonna; and tobacco excites convulsions and universal tremors.

When opium is taken on an empty stomach, and in a fluid form, it acts almost instantly, at least in a few minutes. In "Rust's Magazin," there is a case in which ʒvj. of saffron tincture of opium caused hopeless coma in half an hour. In general the effects of a large dose of opium in a liquid form are perceived in fifteen or twenty minutes. In a case where ʒviij. of crude opium were taken, the patient was able to state what she had done an hour afterwards, and she recovered.* Drunkenness and insanity lengthen the time. From these variations, little confidence is to be placed on the period of attack as a diagnostic symptom.

With respect to the doses of opium which prove fatal; much depends on the constitution and temperament of the individual. Dr. Christison has recorded a case on the authority of Dr. W. Brown, in which four grains and a half proved fatal to an adult. The person swallowed the opium combined with nine grains of camphor; in the morning his wife found him in a deep sleep, from which she could not awake him, and he remained in this state until the afternoon, when Dr. Brown was requested to see him. He found him labouring under the symptoms of poisoning with opium, and in an hour afterwards he died. On the other hand, recoveries have taken place after very large doses of the narcotic have been swallowed. I have already mentioned the solitary case where eight ounces were taken at once. A case is recorded in which fʒj. of laudanum, equal to twenty-four grains, was taken at midnight; the person slept and awoke at his usual hour, without having felt any of the influence of the poison. After rising, vomiting came on, and continued all day, but no other bad effect followed. Half an ounce of the tincture has, however proved fatal.

In every case of poisoning by opium, idiosyncracy has great influence in modifying the effects of the poison; but, independent of this, many other circumstances tend to quicken or to retard its action. If the opium be taken on a full stomach, it will of course be longer in producing its effects than when the stomach is empty. A case is recorded in the "Journal de Chimie Medicale," of a soldier affected with erysipelas, who died from the influence of fifteen drops of laudanum in a linseed poultice, applied on the leg; if it be correctly stated, this must be referred to idiosyncracy.

*Post-mortem Appearances.*

The external aspect of the body is livid; and putrefaction more rapidly occurs than in death from ordinary causes. The pharynx is slightly red; the lungs distended, and gorged with fluid blood; the heart is also distended with fluid blood, but coagula are sometimes found in the ventricles; the stomach—often the villous coat—is red, yet decided inflammation never occurs; the kidneys are gorged with blood, and their pelves are often full of urine; the intestines are injected, the effect of congestion, not of inflammation; the brain displays the vessels turgid; the arachnoid is much infiltered, and occasionally there is effusion of serum into the ventricles; the bladder is generally full of urine, owing to the paralysis of its coats, a fact which, in conjunction with the state of kidney, seems to prove that opium does not arrest all the secretions.

*The Chemical Evidence*

is often very defective, cases having occurred in which there was no doubt that large doses of opium had been swallowed, yet no traces of it could be discovered. The contents of the stomach should always be chemically examined. The poison can often be detected in it by its smell; but this is not always the case.

In order to form correct views with regard to the mode of detecting opium, it is requisite to become well acquainted with the influence of re-agents on two of its components; namely, *morphia* and *meconic acid*.

MORPHIA.

Morphia exists in opium in the form of a meconate, and may be procured from it in a crystalline form.

* Christison's Treatise, 1st edit., p. 530, from the American Medical Recorder, vol. xiii., p. 418; quoted from Gemeinsame Deutche Zeitscrift fur Gchurtshulfe. 1826. 1, 1.

1. The crystal are white, small, six-sided prisms, with dihedral summits. They are nearly insipid; scarcely soluble in water, requiring 5,000 parts for their solution. They are soluble in hot alcohol; and the alcoholic solution has an alkaline reaction. They are soluble in diluted sulphuric, hydrochloric, and acetic acids, and the pure alkaline solutions; but they are insoluble in ether, and in fixed oils. Morphia fuses in a gentle heat, and crystallises on cooling in a radiated form.

2. *Nitric acid* first reddens it, then forms a yellow solution, and, lastly, converts it into oxalic acid. Brucin is also reddened by nitric acid; consequently this test is fallacious; but it is easy to distinguish the one from the other, by adding to the acid solutions proto-chloride of tin: if the salt tested be morphia, the solution is scarcely changed; but if it be brucia, the solution acquires a beautiful purplish-violet hue.

3. When morphia is rubbed up with iodic acid, the acid is decomposed, and the iodine is set free, and forms with starch iodide of amidine, recognised by its blue colour. This test was proposed by Serullas.

4. Rub up iodate of potassa with water, and add a little sulphuric acid; the iodic acid is thus set free: then add starch, and sprinkle into the mixture some morphia, a blue iodide of amidine is rapidly formed. In this case the iodic acid is decomposed by the morphia, and the free iodine then acts, and is detected by the starch.

5. *Perchloride of iron*, when the powder of morphia is added to it, gives the morphia a blue colour.

Such are the characteristics and the tests of morphia; the advantage of knowing them will be made evident to you as we proceed. The components of morphia are 34 equiv. of carbon = 208.08 + 18 of hydrogen = 18 + 1 of nitrogen = 14.15 + 6 of oxygen = 48., making the equivalent = 288.23.

### MECONIC ACID.

This acid has been found only in opium; and can be readily separated from the morphia with which it is combined, and procured in a separate state. When perfectly pure, it assumes the form of white, transparent micaceous scales: in general, however, it has a pale reddish hue. It has a slight acid taste and reaction: the crystals are permanent in the air: when heated in a tube it sublimes white, but, in other respects, it remains unaltered at a heat of 248°; but when the crystals are boiled in water, carbonic acid is evolved, the liquid becomes brown, and a new acid, the metameconic, is generated. When a solution of perchloride of iron is added to the solution, its colour is changed to a purplish-red hue; but nearly a similar effect results from the action of this persalt on sulpho-cyanic acid, which exists in the saliva. This might lead to fallacy, but the nitro-muriate of gold detects the persulpho-cyanate by destroying its colour, whilst it does not affect the permeconate of iron.

Having demonstrated the influence of these tests on morphia and meconic acid, the question next presents itself, how are we to take advantage of these facts in our search for opium in cases of suspected poisoning by that drug?

If the poison be found in substance there is no difficulty in recognising its physical characters: its odour, taste, solubility in water. The action of persulphate of iron on the aqueous solution largely diluted, is nearly the same as that on the meconic acid.

If the poison have been the ordinary tincture of opium, and any of it be found, it is with equal readiness detected by the same means, namely, by the persulphate of iron. But if any doubt exist, dilute what remains with distilled water, and precipitate by acetate of lead; then mix with diluted sulphuric acid, and filter: ultimately, test the supernatant fluid with persulphate of iron.

But it may happen that we have only the contents of the stomach to operate on: in this case, boil the whole in distilled water, acidulated with distilled vinegar; and then filter, and evaporate to the consistence of an extract in a water-bath. Rub this extract in a mortar with hot, strong, alcohol; then boil the whole, and, after the solution has cooled, filter. Evaporate this solution to the consistence of a thin extract, and dissolve in distilled water; then digest in pure animal charcoal, and filter. By this means we obtain all the soluble matters, deprived of much colour; and we obtain, also, the meconate of morphia in solution, if opium be contained in the substances examined. We are, next, to precipitate with a solution of acetate of lead containing an excess of acid, by which the meconate of morphia is fully decomposed; a meconate of lead is thrown down, and acetate of morphia is left in the solution. The supernatant fluid is then to be decanted, and the precipitate washed with distilled water; and, after being dried, it is to be divided into two portions, *a*, *b*.

1. Diffuse portion *a*, in some distilled water, and pass through it a stream of sulphuretted hydrogen gas; afterwards heat and filter. Test the filtered fluid for meconic acid with persulphate of iron.

2. Diffuse portion *b*, in distilled water, and add some diluted sulphuric acid. After the whole settles, test the fluid for meconic acid with persulphate of iron.

This proof would be sufficient, but in legal investigation more is required. When the supernatant fluid, therefore, becomes clear, pour it off from the precipitate, evaporate in a water-bath, and treat the residue again with strong alcohol; then filter, and, having formed an extract, redissolve with water; again filter and evaporate to con-

centrate the solution, after which precipitate with ammonia. This precipitates the morphia, and leaves meconate of ammonia in solution: but as it is necessary that the whole of the morphia should be thrown down, it is essential previously to discolour the fluid by means of animal charcoal. When this is not done, the colouring matter interferes with the precipitation. The precipitate, if opium was the poison, is morphia, but this must be determined by testing it with nitric acid, or the iodate of potassa.

Mr. Battley's solution, the black drop, the solution of hydrochlorate of morphia, and all the salts of morphia, in mixed fluids, may be detected in the same manner. In the examination of morphia itself, by whatever means procured, you should be aware that in using the permuriate of iron, the addition of any acid, or alcohol, or acetic ether, prevents the blue colour from being formed, and destroys it when it is present.

Perhaps the best of all the tests for the salts of morphia, is the iodate of potassa; the one-hundredth part of a grain of the acetate, in solution, may be detected by this means. The tests for the acids of the salts determine the nature of the salt; namely, nitrate of silver, detects the hydrochlorate; nitrate of baryta the sulphate; and sulphuric acid the acetate.

In describing these methods of detecting opium and the salts of morphia in mixed fluids, it is essential to impress upon your minds the fact, which is so justly urged by Dr. Christison, that in cases of poisoning with opium you must expect the best methods of analysis often to disappoint you, when you search for the poison in the contents of the stomach. In these cases, therefore, the evidence of chemical analysis is often defective, and the whole decision must rest upon the moral evidence, and the symptoms which have preceded death. It is, accordingly, no proof that opium was not the poison because it is not found in the stomach. A case demonstrative of this fact was published in the "Morning Chronicle" of Jan. 8th, 1823. There could be no doubt that laudanum had been taken, yet the medical man confidently declared the contrary, merely because he could not detect it in the stomach.

M. Desruelle has recorded the case of a soldier who died six hours after swallowing 3ij. of solid opium, yet nothing was found in the stomach but a yellowish fluid, quite inodorous. It has been confidently stated that in cases of poisoning by opium, proofs may be obtained from the analysis of the urine. Orfila says that he found morphia in the urine of a dog, which was killed with 18 grs. of acetate of morphia. Vauquelin and Dublanc also assert that they have detected it in the urine. I have searched for it in the urine of individuals poisoned by opium, but I have never succeeded in finding it; and the same disappointment has followed the researches of Peligot and Devergie on the human subject. Devergie looked for it in the urine of a diabetic patient who was taking xij. grains of extract of opium daily in the *Hopital de la Charité* in Paris, but could not find it.

Morphia and its salts operate on man nearly in the same manner as opium, with the exception that the convulsions are more common, and there is also intense itching of the skin. The convulsions occurred five minutes after the administration of the draught to the patient whom Castaing poisoned. He was found, soon afterwards, insensible, with a burning skin, inability to swallow, lock-jaw, and a sinking pulse. The belly became tense, and the limbs were affected with rigid spasms. All the salts of morphia operate nearly in the same manner. The acetate, however, causes the most copious sweating, and the symptoms closely resemble those of tetanus.

*Treatment of poisoning with Opium.*

In the treatment of cases of poisoning by opium we have two principal conditions to fulfil, namely,—

1. To evacuate the poison from the stomach, or to modify its action by the introduction of some substance capable of completely changing its properties, or to destroy these by rendering the active principle of the drug inert or insoluble.

2. To act upon the nervous system by medicines capable of overcoming the influence of the poison upon that part of our frame.

The first indication, namely, evacuating the stomach, is to be accomplished by the stomach pump, and, instead of pure water, a weak solution of carbonate of potassa or of ammonia should be employed, in order to decompose the opium, and to diminish the solubility of the morphia; or an infusion of galls may be employed with the same intention.

If the stomach pump be not at hand, it is advisable to administer any astringent infusion, or decoction, and afterwards to excite vomiting by means of direct emetics, namely, the sulphate of zinc in doses of 3ss., or the sulphate of copper in doses of xv. grs. Emetics, indeed, are generally regarded preferable to the stomach pump, when the poison has been taken in a solid state, but as opium is not likely to operate with much energy until it is dissolved in the stomach, this reason, for the preference of emetics to the stomach pump, falls to the ground. When the emetics fail of exciting the stomach, it has been proposed to inject the emetic substance into the veins. There can be no doubt of the augmented power of any substance capable of exciting vomiting, when it is introduced into the system in this

method; but unless the operation be performed with great nicety, and with the utmost caution, much danger may result from air being introduced along with the emetic solution. Experiments demonstrated that a single globule of air introduced into a vein has caused death the moment it reached the heart; such an operation, therefore, powerful as it is, should not be rashly attempted.

The second indication is fulfilled by the administration of the infusion of galls, and in a slighter degree by alkalies. It has, also, been proposed by M. Donne to employ the tinctures of iodine, or the solution of chlorine, or of bromine, with the view of transforming the morphia into new compounds which possess less influence over the nervous system than the meconate, which is contained in opium. But the experiments upon which M. Donne has founded his opinion of the efficacy of these antidotes are not sufficient to authorize me to recommend them to your notice.

In fulfilling the indications which present themselves when the influence of the poison is not overcome by the means which I have just detailed, we must endeavour to combat the symptoms as they display themselves. To destroy the narcotism the patient is to be kept constantly roused by dashing cold water on the face and chest; by introducing a strong infusion of coffee into the stomach by means of the pump; or, as some have recommended, in the form of enema, from the employment of which the coffee is said to operate more energetically than when it is introduced into the stomach. Devergie has recorded the case of the infant of a medical man who was saved by this means. Fifteen hours after the poison had been administered the pulse was slow, the skin cold, the eyes fixed, and the pupils dilated, and not affected by light. An enema containing a weak decoction of coffee was exhibited; in less than a quarter of an hour the coma disappeared, and the child recovered.

When the coma is considerable, bloodletting has been found efficacious, especially if the person be of a plethoric habit of body. Two cases, in which its efficacy was conspicuous, are recorded in the 18th volume of the "Edinburgh Medical and Surgical Journal" by Mr. Richardson; and a third in the 19th volume, by Mr. Rose. The individual, in the last case, was a stout active seaman, who had taken the desperate resolution of destroying himself. He swallowed two ounces of laudanum between four and five o'clock in the afternoon. Mr. Milner, a druggist, who saw him at six o'clock, administered ℥ij. of sulphate of zinc in solution, and half a drachm more was soon afterwards, also, forced into the stomach. He vomited copiously. Although he was kept constantly agitated, and even roused by pulling him by the hair of his head, yet, if these measures were discontinued for a moment, he immediately relapsed into a state of stupor and insensibility.

"About nine o'clock," adds Mr. Rose, the coma became deeper, the breathing more laborious, the face and lips assumed a more livid complexion, the pulse fell rapidly, and intermitted. In a word, he had the appearance of a man dying of compression of the brain. These symptoms," continues Mr. Rose, "induced me to suggest the propriety of bloodletting, with which Mr. Galloway, a surgeon who was also in attendance, having readily concurred, I took away about sixteen ounces.

"Immediately after the operation the pulse rose to about 100, respiration was easier, and the other symptoms of oppression were diminished, and continued to abate until about ten o'clock. He had then so far recovered that Mr. Galloway and myself left him in charge of a young medical gentleman, who was directed to exhibit the diluents from time to time, with small doses of the sulphate of zinc. Continued agitation was persisted in until near three in the morning, when the comatose symptoms having vanished, he was able to recognise the different individuals around him, and walked home, with support, to his house, a few streets distant."

The beneficial influence of the bloodletting in this case was evident, and it is a fact not to be lost sight of in similar cases. It is not easy to conceive what benefit could be anticipated from the employment of the small doses of the sulphate of zinc, with diluents after the use of the lancet.

The administration of acids, even in the form of enemas is, in my opinion, in every instance objectionable, until the whole of the poison has been evacuated from the intestinal canal as well as from the stomach. After that has been effected, nothing so soon restores the energy of the digestive organs as the free administration of the vegetable acids, with brandy and similar excitants.

In the course of the treatment, if the pulse sink greatly, and the animal temperature be diminished, sinapisms may be applied to the soles of the feet. In every case much discretion and judgment are required from the practitioner.

### HYOSCYAMUS.

Hyoscyamus is another narcotic poison, which has, occasionally, been productive of fatal effects. Even the odour or exhalation from the plant is deleterious. Wepfer mentions an instance of a man, who was sleeping in a granary where many of the roots of this plant were deposited with the intention of poisoning rats, and who awoke with strong symptoms of narcotism. Acci-

dents have several times occurred by eating the herbaceous part of the plant as a salad instead of dandalion (dent-de-leon). CLOCQUET mentions an instance of this kind, in which they were eaten, dressed with oil, by some young soldiers; and a fatal case is recorded, in the 39th volume of the "Philosophical Transactions," in which seven people suffered, who had eaten them boiled in broth. In the 38th volume of the same work, Sir HANS SLOANE has related a case in which the capsules were eaten instead of filberts. A man who had taken twenty-four grains of the seeds, was attacked with epileptic convulsions.

The resemblance of the roots to parsnips has been productive, also, of many accidents. A whole convent was poisoned by these roots having been eaten instead of chiccory. Indeed, the ROOT is as poisonous as the herb, or the seeds. An instance of a whole family being poisoned by it is detailed by Dr. PATANILLET, of Torcey, in France, The symptoms were convulsions, risus sardonicus, retraction of the angles of the mouth on both sides, the eyes starting out of the head, howlings, and, what was remarkable, prophetic delirium:—for example, one said—"in a month my neighbour will lose a cow;" and so on. One boy ran from the house and jumped into a pond. The roots had been mistaken for parsnips, and boiled in soup. They all recovered, but during the following day every object seemed to be double; and, on the next, although the objects appeared single, yet they were as *red* as scarlet: and this morbid condition of the eye continued for three days.*

The symptoms closely resemble those of intoxication. There is no local irritation; but the poisonous principle of the plant, separated by the digestive power of the stomach, seems to be taken into the circulation, and to act upon the brain and nervous centres, producing delirium, ravings, coma, and profound sleep, from which, if the patients do not die, they awake merely weak. The pupils are generally greatly dilated, yet there is dimness of sight, and complete insensibility of the eyes, so that they can be approached with a lighted candle without causing even winking; the arms are convulsed; and agitations, not unlike those of chorea, supervene.

HALLER has recorded a curious instance of the influence of henbane on a young gentleman who had resisted the poisonous properties of aconitum, belladonna, and several other plants, in large doses. He was making experiments with narcotic poisons upon himself; he became paralysed, and, for some time, suffered under mental alienation.

The influence of the poison is well described in a case detailed by M. CHOQUET. Two young men ate some of the tender shoots of henbane dressed as a salad; they soon became so excited that the ground seemed to fly from under them; their countenances became stupid, their eyes haggard, the pupils dilated, and their look fixed; by degrees they lost the power of speech, and their limbs became numbed and cold.*

GEIGER has ascertained that the poisonous agent in henbane is an alkaloid, which he has named *hyoscyamia*. It is procured in silky, acicular crystals, colourless, and having an acrid, sharp taste, resembling tobacco; it is scarcely soluble in water, but very soluble in alcohol, and in ether. The crystals are partly volatile, give an alkaline reaction, and colour tincture of iodine red; and precipitate galls white.

*Henbane* is an indigenous plant, and is found, in many parts of the island, in waste places. The root is long, tapering, and not unlike a parsnip. The stem is erect, rising sometimes to the height of three feet. The leaves, which are alternate, are large, deeply serrated, downy, and clammy to the touch. The flowers are in terminal, leafy spikes, and are on one side only of the spike. The calyx is permanent, of one piece, five-toothed, and reticulated. The corolla is a pale, whitish-yellow, beautifully pencilled with purple veins. The capsule is biloculur, covered with a convex, smooth lid, which falls off like the lid of a snuffbox. It contains numerous small, irregular, brown seeds.

In cases of poisoning by hyoscyamus, the stomach-pump must be employed with acidulated fluids, which weaken the force of the poison, and, afterwards, the case should be treated as one of simple narcotic poisoning. Nothing proves more serviceable in these cases than dashing cold water on the face and chest.

### LACTUCA VIROSA.

The lactuca virosa is placed, generally, among the narcotic poisons, but very contradictory accounts of its effects have been recorded. Thus, lb. jss. of the fresh leaves have been given to a dog without causing any deleterious effects; but two drachms of the extract have always killed these animals. The extract of the juice inspissated has more energy of action than that obtained by boiling the plant in water. The symptoms caused by this poison are the same as those of opium, only in a diminished degree.

There is no topical influence induced, but the whole depends on the absorption of the active principle, whatever it may be. The symptoms are to be combatted in the same manner as those caused by opium.

### THE SOLANACEÆ.

All the solanaceæ are, more or less, poisonous; either the herbaceous parts of the

* Quarterly Review, vol. 48, pp. 305-6.

* "Journ. de Livraux et Corviart."

plants or the fruits. The berries of the solanum nigrum, and those of the s. dulcamara, being very enticing in their appearance, have been often eaten by children, and have caused much purging and vomiting, but no instance is recorded of any fatal effects having resulted from eating them. M. M. PAYEN and CHEVALIER have obtained a white pulverulent substance from the fruit of several species of solanum, having a bitterish, nauseous taste: little soluble in water, in ether, volatile oils, or fixed oils; but very soluble in alcohol. It offers no alkaline reaction; is not reddened by nitric acid; but dissolves in acids, and forms salts with them, from which potassa precipitates the solania, the name given to this alkali.

The fruit and plants of the solanaceæ are easily distinguished by their alternate leaves, the inflorescence being variable, and often out of the axilla; the flowers regular, with a plaited corolla, and the fruit succulent.

The symptoms which eating either the fruit, or any part of the plants, produce, are those usually induced by narcotic plants, and are to be treated in the same manner as those caused by opium.

### COCULUS INDICUS.

Coculus indicus is another poison which owes its poisonous properties to an alkaloid, namely, *picrotoxia*.

The fruit of this menispermum is a small, somewhat flattened, reniform nut, composed of an exterior, rough, blackish, tunic; a white kernel very bitter. The picrotoxia is a white, resinoid substance, neither acid nor alkaline, but combining with both acids and alkalies: its crystals are silky prisms, soluble in 150 parts of cold and 25 of boiling water; and very soluble in alcohol. Sulphuric acid yellows it slightly, and, by degrees, changes it to a saffron red.

From experiments made with this salt upon dogs, the symptoms resemble those of strychnia. Ten grains produced powerful tetanic convulsions on a strong dog, and proved fatal in ten minutes.

The symptoms produced by the fruit on man are those of intoxication; and, according to WEPFER, they appear to exhaust the irritability of the heart; for, after death, it cannot be excited, and its cavities are found empty. Professor BRENT details a case where nine persons were poisoned by soup seasoned with coculus indicus instead of pepper. Sickness, vomiting, and colic supervened, and were followed by coma and other narcotic symptoms. One person died at the end of two days.

The general treatment of such cases is exactly the same as that indicated in poisoning by other narcotics.

## LECTURES
ON
## MATERIA MEDICA AND THERAPEUTICS,

NOW IN COURSE OF DELIVERY
AT THE
WINDMILL-STREET SCHOOL OF MEDICINE
BY
### GEORGE G. SIGMOND, M.D.

### LECTURE XXVI.

PRUSSIC ACID (concluded): — *Rapidity of death from a large dose. Cases narrated by Hufeland, Metzdorf, and Christison. Question of the period which may elapse between its administration and its action and the fatal event. Case, with decapitation, perfectly investigated by French medical jurists. Necessity of examining the stomach after sudden death. Formation of prussic acid in the stomach. Extraordinary state of the eye after poisoning with this acid. Other symptoms. Tissues on which it acts most quickly. Form in which it is most energetic. Recoveries. Treatment. Cold affusion, ammonia, chlorine, venesection. Medicinal administration of laurel-water. Works on prussic acid by Dr. Granville and Dr. Elliotson, and foreign physicians. Opinions for and against its use. Cautions in its administration. Differences between hospital and private practice. Medicinal value of prussic acid.*

GENTLEMEN:—Numerous are the details of instantaneous death consequent upon taking the prussic or hydrocyanic acid, and the professors of medical jurisprudence have, with great industry, accumulated a vast variety of facts relating thereto, and have pointed out the tests for the acid, and the means by which restoration to life may be effected; but as these points, though of the deepest interest, are embraced under that branch of science, I can only cursorily invite your attention to them.

Death, when the dose is large, is almost instantaneous, and without convulsions; thus, HUFELAND narrates a case of a strong, healthy man, who, under circumstances of great desperation, took a quantity, supposed to be about an ounce, which was contained in a small sealed phial; it exhaled a strong smell of bitter almonds. He staggered a few steps afterwards, sunk on his knee, and fell without a groan. At from four to five minutes from that time, the physician who had been sent for found him stretched out, and exhibiting no trace of pulse or respiration. In a few minutes a horribly

deep expiration took place, by which the ribs were drawn nearly to the vertebræ, and the thorax seemed to form a hollow externally, the hands and feet were dead-cold, the countenance sunk, and of a dirty pale hue, the eyes half-open, glistening, clear, and apparently full of life, but not sensible to the stimulus of light; the mouth closed naturally; the abdomen and thorax were yet warm, and covered with a clammy sweat; the face and forehead cold and dry. Within a minute and a half, two other deep sonorous inspirations and expirations followed, accompanied by a convulsive motion of the thoracic muscles, but neither the mouth nor the muscles of the face shewed any sign of action. On conveying him to a vault, after four hours a faint groan was heard, probably the result of a discharge of air from the thorax. In the evening he was found stretched out, the eyes half open; full, prominent, and as brilliant as in the wildest emotions of ardent youth. The countenance had lost the dirty grey hue, and there was a softened paleness, which singularly contrasted with the characteristic and striking brilliancy of the eyes. On the following day, when an examination of the dead body took place, there was no distortion of the countenance, nor any evidence of convulsion. This case has been reported in the "Medico-Chirurgical Review," with a very good analysis of the most important facts, and the appearances presented upon dissection.

Metzdorf furnishes us with the case of an hypochondriac, forty-four years of age, who swallowed, at eight o'clock in the morning, two drachms of the ethereal oil of bitter-almonds; he threw himself back on his bed, and called to his housekeeper, who was in the adjoining apartment; on her entering into the room, she saw his eyes roll upwards, his face spasmodically affected, and his chest heaving laboriously. In twenty minutes a physician arrived, who found the individual insensible, his eyes opened and fixed, the pupils immoveable, the breathing stertorous, and becoming slower every instant, the pulse scarcely perceptible. In ten minutes more the patient expired, his body emitting a strong odour of bitter almonds. Another instance is mentioned by the same medical man, of a youth 20 years of age, an apothecary, who swallowed, as nearly as could be guessed, about three drachms and a half of prussic acid; he was found dead in his bed; but the interval between swallowing the poison and dissolution could not be ascertained.

Dr. Christison has related some curious cases with a view of throwing some light upon a question which must be considered of very great importance, the determining the time within which this fatal poison begins to act on man; it seems that even when an enormous quantity has been swallowed, there are still both the will and the power to perform certain actions, and that in many cases death is not so instantaneous as to prevent the individual from attempting to disguise suicide. Of this kind is the case of an apothecary's apprentice lad, who was sent from the shop to the cellar for some carbonate of potash, but he had been only a few minutes away, when his companions heard him cry, in a voice of great alarm, "Hartshorn! hartshorn!" On instantly rushing down stairs, they found him reclining on the lower steps, and grasping the rail; and he had scarcely time to utter "Prussic acid," when he expired, not more than five minutes after leaving the shop. On the floor of the cellar an ounce phial was found, which had been filled with the Bavarian hydrocyanic acid, but contained only a drachm. It appeared he had ignorantly taken the acid for an experiment, and from the state of the articles in the cellar, it was evident that, alarmed at the instantaneous operation, he had tried to get at the ammonia, which he knew was the antidote, but had found that the tremendous activity of the poison would not allow him even to undo the coverings of the bottle.

In the year 1829, Freeman was tried at the assizes at Leicester for the murder of Judith Buswell, and the case has been more than once referred to, more particularly as the medical jurists have had some difference of opinion, and doubts have arisen as to the correctness of some of the views advanced. An apothecary's maid-servant was found dead in her bed, and evidently her decease had been occasioned by the internal administration of prussic acid. It was known that she was pregnant, and suspicion fell upon the apothecary's apprentice, by whom she was enciente: on the other hand, there was decided proof that, on the night of her death, the woman had made arrangements by which a miscarriage might be produced by artificial means. The body was found in a composed position, the arms crossed over the trunk, the bed-clothes pulled smoothly up to her chin; at her right side lay a small narrow-necked phial, from which about five drachms of the medicinal prussic acid had been taken, and which was corked and wrapped in paper. The question very naturally suggested itself, could an individual after drinking a fluid out of such a vessel, before becoming insensible, have time to cork the bottle, wrap it up, and adjust the bed-clothes. At the request of the judge, the medical men of Leicester made some experiments, upon which they, with the exception of one gentleman, gave it as their opinion that the supposed acts of volition, although they were within the bounds of possibility, were in the highest degree

improbable. The prisoner was found not guilty.

There is a report, upon a case of poisoning and murder, by MM. CHEVALIER and BOYS DE LOURY, in the "Annales d'Hygiene Publique et de Medecine Legale," for the month of May, 1833, which has been considered one of the finest specimens of medical investigation, and of patient research, that we are in possession of. The minuteness with which the French medical men pursue these inquiries is honourable to themselves, and deeply important to the public welfare. It is a matter of great regret that the same system is not pursued in this country, for it must prevent the commission of crime, and place in the power of the tribunals instruments of quick discovery; but whilst the remuneration to the learned, the anxious, and the careful investigator, is so inadequate, we cannot expect favourable results. I must not here dwell upon the badness of the system in this country with regard to a most valuable class, upon whom the health and the welfare of the community depend, but on the proper conduct of society towards them must soon depend whether the science of medicine shall not only retrograde from its present high position, but be the fruitful source of misery and grief, not to individuals merely, but to the country which has so long neglected them. The late inquest on GREENACRE fully proves what our state of knowledge is, and the admirable evidence furnished by Mr. GIRDWOOD on that occasion is as honourable to himself as to the profession to which he belongs, and of course was the means by which the ends of justice were obtained. In the case to which I allude, the same difficulties at first presented themselves, as to the identity of the individual murdered, and the mode by which death was produced; and medical evidence elucidated both these points.

About five in the morning, the head of a man was found under the second arch of the Bridge de la Tournelle, Paris; the trunk of the body was afterwards discovered in a sink, in the street De la Houchette, and the two lower extremities near the Pont Neuf. Subsequent inquiries led to the knowledge, that the deceased was a man of the name of RAMUS, and that he was an old soldier, lately employed as a messenger for the bureau of a receiver of taxes. The head and body being deposited at the Morgue, the medical examination commenced, which, from the very great length at which it is reported, renders it exceedingly difficult to enter much into it, though, from the careful and judicious mode of procedure, the medical man, in this country, would derive great advantage from its perusal. The exterior appearance showed the deceased to be about thirty: his countenance exhibited not the slightest mark of suffering or of anxiety; the features were calm, the eyes half open, the mouth wide open, the skin pale and livid; there was a slight wound upon the forehead, and there appeared two or three slight bruises upon the face, but no indication whatever of violence upon any part of the body. The medical men, from all the circumstances which presented themselves, on examining the manner in which decapitation and amputation had been performed, came to the conclusion that RAMUS was killed during sleep, and that that sleep must have been produced by artificial means; that it was either the result of drunkenness, or the effect of some narcotic; that the throat must have been cut, and an immense quantity of blood lost; that the decapitation and the cutting off of the limbs must have been immediately performed by a person accustomed to such operations either on man or on animals; that the instrument must have been sharply edged and long, either such as is used for amputation or for the kitchen; that he must have been a vigorous person, that all the incisions were made by the same hand, and that the murderer became nervous as he concluded his horrid act. They then proceeded to the examination of the internal parts of the body, which led them to pronounce, that the unfortunate man had laboured under no disease which had a tendency to terminate life suddenly; that death was solely produced by the cutting of the throat; that the contusions on the face were the result of the endeavours made, during the amputation, to perform it quickly; and that death must have taken place about three hours after he had had a meal. The contents of the stomach were submitted to analysis, and were pronounced to contain a small quantity of alcohol and of hydrocyanic, or prussic acid, but its quantity could not be determined. About three weeks afterwards the murderer was arrested, or, rather, delivered himself into the hands of justice; for, learning that his son, who had been just apprenticed to an apothecary at Paris, had been taken up on suspicion, he returned to Paris, having previously left it for Arc. He confessed, at the Prefecture of Police, after some hesitation, his crime; and it was most satisfactory, to all those who were interested in the subject, to find how completely the opinions given by the medical men were borne out by the narrative of the person who committed the deed. Just previous to the death of RAMUS he had given him a mixture of brandy and prussic acid, and had murdered his victim exactly in the manner which the documents delivered in by the examiners of the body had led the public to expect. In the examination of the contents of the stomach there were proved to be present traces of other matters which had been taken. The rooms in which the murderer lived were next the subject of examination, and all the bottles,

the utensils, the different stains and marks which were visible, became the subjects of chemical investigation, and completely was each particular of every substance that had been taken analysed, and every thing entirely elucidated; and so thoroughly satisfactory a chain of evidence was submitted to the jury, that even without the necessity of receiving the confession, the man was found guilty of poisoning, murder, and theft.

This number of the "Annales" contains another case which shows the necessity, where a person dies suddenly, of examining the contents of the stomach by chemical analysis, before pronouncing upon the cause. A man was overthrown by a public conveyance; he rose, but after some seconds he fell down again, and died. The proprietor of the carriage was, as the laws of France direct, taken up, on suspicion, as the cause of death, and rendered responsible for it. He alleged, in defence, that he was not liable, for the man was in a state of intoxication; and upon examination, by analysis, of that which was found in his stomach, it was proved that he had taken some beverage which contained a large proportion of alcohol, and that it was surcharged with oil of aniseed.

In the remarks made by the medical men on such examinations, you will find that they are thoroughly aware that hydrocyanic acid might be formed in the stomach, perfectly independently of its internal administration for the purpose of poisoning; and the following observations, made upon the trial I have just mentioned, fully bear out the opinion I have advanced in my former lecture upon the difficulty attendant upon recognising the products of fermentation, and whether prussic acid may not be developed shortly after death:—"Plusieurs practiciens pensent qu'il peut y avoir formation d'acide prussique, dans la fermentation des matières animales, et à notre connoissance aucun fait n'a demontrè si cette assertion est erronée.

Numerous reports have now been made of those who have died in consequence of this poison, and the most striking effects to be observed are the extraordinary state of the eye, which has, indeed, been considered as the most characteristic phenomenon, and at once to point out the cause of death; the shining, glistening, sparkling lustre of the eye has been, on most occasions, observed; no one has, so far as I am able to learn, attempted to explain this most striking appearance; it has, however, been said that those who die from the effects of charcoal often exhibit the same unearthly lustre; and it has also been noticed in cases of death during the epileptic paroxysm; and Dr. Christison tells us that he remarked it very distinctly, six hours after death, in a woman who died of cholera. Certain it is that, in the greater number of cases detailed, the state of the eye has been particularly mentioned; the peculiar composure of the countenance, and the exhalation of a characteristic odour, are the other more striking circumstances to be noted. The alterations in structure do not appear to be very different from those which may attend upon any of the narcotic poisons. Death appears to be more or less rapidly produced according to the age of the individual. The experiments of Orfila prove that the younger the animal the more deadly is the poison, and death will be more instantaneous where the circulation is most active. The intensity of its action will very materially vary according to the organ, or to the tissue, to which it has been applied. When injected into the jugular vein, or into the trachea, it is much more immediate in its operation than when injected into the thorax, and it is much less poisonous when introduced either into the stomach or into the rectum; its action is weaker when applied to wounds; it will likewise act when the epidermis has not been removed. Robiquet found that, whilst he was making some experiments on the vapour, his fingers, after being some time exposed to it, became affected with numbness, which lasted for several days. Of the different forms in which the acid produces its fatal effects, that of vapour is the most rapid; a bird, a rabbit, a cat, and two dogs, were made to breathe air saturated with its vapour; the first died in one second, the rabbit also in a single second, the cat in two seconds, one dog in five, and the other dog in ten seconds. Dr. Christison, in his work on poisons, has detailed the experiments made by himself in order to determine the shortest period which elapses before the poison begins to operate, as well as the shortest time in which it proves fatal. He found that a single drop, weighing scarcely a third of a grain, dropped into the mouth of a rabbit, killed it in 83 seconds, and began to act in 63 seconds; that three drops, weighing four-fifths of a grain, in like manner killed a strong cat in 63 seconds, and began to act in 10; that another was affected by the same dose in 5, and died in 40 seconds; that four drops, weighing a grain and a fifth, did not affect a rabbit for 20 seconds, but killed it in 10 seconds more; and that 25 grains, corresponding with an ounce and a half of medicinal acid, began to act on a rabbit as soon as it was poured into his mouth, and killed it outright in 10 seconds at farthest. It appears that if the dose do not at once overpower life, recovery from its effects is, without very great difficulty, induced, and more particularly where the poison has been brought into contact with the eye, which has been said to be the readiest mode of destruction, or where

it has been taken into the stomach. Indeed, it appears, notwithstanding the tremendous energy of this terrific poison, that even where apparent death has been the consequence of its being internally taken, recovery is not altogether to be despaired of, and that in a vast number of instances where attempts have been made, this has occurred, and that we are not to consider any case hopeless.

Dr. Herbst, about ten years since, tried a great number of experiments to ascertain by what means the effects of this most potent poison can be counteracted, and the result of his observations is given in the "Archiv. fur. Anatomie and Physiologie." He thinks that the greatest reliance is to be placed on the affusion of cold water, and he states, that when the dose administered has not been sufficient to prove instantaneously destructive, two affusions of cold water have effectually removed every unpleasant symptom; if any very large quantity had been taken, it became necessary more frequently to employ this remedy. Successful results were more frequently the case where the means were quickly resorted to. Even in the stages of complete paralysis and total insensibility it was most advantageously employed. In those cases where convulsions occur, and which is generally to be observed only where the dose has not been very large, there is every prospect of ultimate recovery, and the first hope is inspired by the renewal of the spasmodic action of the muscles. The experiments of Herbst have been repeated by Orfila, and by others in this country, and with the same results. In one instance, where the dose was very large, (nearly an ounce had been given to a dog,) after apparent death, life was recalled by the affusion of water by means of the pump. The other means which have been recommended, but which are much more uncertain and relative, and on which different opinions are entertained by the great teachers of toxicology, are ammonia and chlorine.

Mr. John Murray is generally said to have been the first person who recommended ammonia, which he did from having made some careful experiments on animals, and so decided was he in his view of the subject, so sanguine in the merits of his discovery, that he declared himself willing to swallow a destructive dose, provided there was any individual present who would, with proper assiduity and attention, employ the remedy on whose effects he placed such reliance. But early as the days of Dr. Mead this antidote was known; he gave to a small dog about an ounce of strong laurel water; the dog fell immediately into most violent convulsions, which were soon followed by a total loss of his limbs. When he seemed to be expiring, a good spirit of sal ammonia was held to his nostrils, and a small quantity forced down his throat; he instantly felt its virtue, and by continuing the use of it for some time, by degrees recovered the motion of his legs, and in about two hours walked about with moderate strength, and was afterwards perfectly well. The dissertation on poisons by Dr. Mead contains a short essay on the laurel water; he ascribes its deadly power to the oil which it contains, and he thinks the ammonia an antidote to such a poison, which, "without any inflaming quality, stupifies, and stops the motion of the nervous fluid."

Whether Chabert, the celebrated heat-of-oven resister, ever swallowed the acid is doubtful; that he took phosphorus I am fully persuaded, for I myself placed upon his tongue a quantity of some of the purest that could be obtained, and I do not think it possible that by any juggling trick he could have again removed it from his mouth, from which it disappeared after the usual method of deglutition. Herbst tried liquid ammonia upon animals, but he declares that it will scarcely ever save life, where a dose of sufficient magnitude to terminate existence has really been taken, though he admits, that where the quantity is only such as to excite great alarm, without producing apparent death, it is of great benefit in alleviating the worst symptoms; the chief objection is, that it excoriates the parts to which it is applied, and if it be so much diluted as to prevent this inconvenience, it loses its remedial power. A case is related in the "Revue Medicale," of a French physician, who took experimentally various quantities of prussic acid, to show how unequal was the strength of some samples, at last, after swallowing some which had been prepared by Vauquelin, was seized with confusion in the head, and fell down insensible, with difficult breathing, and locked jaw; he had fits of tetanus, but was recovered by ammonia; the mouth, the air-passages, and even the alimentary canal, were very violently affected by the remedy, and pulmonary catarrh supervened.

Orfila observed, that when from eight to fourteen drops of the diluted acid were given to animals, they died in about fifteen minutes, if no remedy were administered, but if they were made to inhale the vapour from ammonia they recovered. Buchner and Dupuy confirm these experiments. Orfila seems to prefer chlorine, and considers that it is by far the most decided antidote, and details the experiments which have led him to this conclusion. It was Riauz, a chemist, at Ulm, who has the merit of first announcing the power of chlorine, which he ascertained from the circumstance of the revival of a pigeon, which, on the point of death from the acid, was made to respire chlorine, and in fifteen minutes was able to fly away. Buchner, Cottereau,

and VALETTE confirm the fact. On the whole, we must give the preference to cold water, diligently and freely poured over the head and neck, and as there is very little difficulty in procuring ammonia, it should next be had recourse to, and then venesection; and with these appliances, if the dose be not too powerful, restoration to life may be effected.

It appears from a passage in the "Amœnitates" of LINNÆUS, that the Dutch were in the habit of administering laurel-water in pulmonary disease; or, to make use of his own words, "Folia per Belgium usitatissima sunt, pro infuso in morbis pulmones depascentibus." LANGRISH and BERGIUS gave it in intermittent fever; HAHNNEMAN has also employed it in hooping-cough. It was likewise recommended by PLENCK, as a gargle in inflammatory fever. It was excluded from the English Pharmacopœia, as QUINCEY observes, when speaking of the aqua cerasorum nigrorum, which he tells us was the first remedy which nurses gave to children in convulsive disorders. He says,—"This water has been brought into disrepute, and by some looked on as poisonous. They observe that it receives its flavour principally from the cherry-stones, and that these kernels, like many others, bear a resemblance to, and taste of the leaves of, the lauro cerasus, which has for some time past been discovered to yield, by infusion, or distillation, the most sudden poison known. Some physicians of Worcester have lately found, by trial purposely made, that a distilled water, very strongly impregnated with the flavour of the cherry kernels, (no more than two pints being distilled from fourteen pounds of the cherry-stones) proved, in like manner, poisonous to brutes. The Committee of the London College repeated the same experiments, and found the effects agreeable to those gentlemen's reports."

In November, 1817, MAGENDIE laid before the Academy of Sciences at Paris, the results of his employment of hydrocyanic acid in the cure of diseases of the chest; this paper was immediately translated, and inserted in the Journal of the Royal Institution, by Dr. GRANVILLE, a physician of great literary talent, and of indefatigable industry, to whom the profession owes a deep debt of obligation for numerous works, which exhibit great research, and an anxious wish to promote the general welfare. In March, 1819, he published a volume, entitled, "Further Observations on the internal Use of the Hydrocyanic and Prussic Acid, in Pulmonary Complaints, Chronic Catarrhs, Spasmodic Coughs, Asthma, Hooping-cough, and some other Diseases." This volume contains his own experience, and likewise the result of the practice of some other medical men, who, at his suggestion, employed the prussic acid, and prefixed to his own cases are to be found a history of the acid, the various processes at that time followed for obtaining it, and a general view of its physical properties; besides which he has given various formulæ for prescribing it.

In 1820 a second edition appeared, which was a practical treatise, and, in fact, a new work, and in the same year Dr. ELLIOTSON published, in a volume, cases illustrative of the efficacy of the hydrocyanic or prussic acid, in affections of the stomach, with a report upon its powers in pectoral and other diseases, in which it has been already recommended, and some facts respecting the necessity of varying the doses of medicine according to circumstances; so that the profession in this country had from two distinguished individuals in the science, the result of many opportunities enjoyed of judging of the merits of a remedy which possesses such extraordinary influence upon the human frame. Whilst these physicians were thus usefully employed in England, there were many men of high talent pursuing the same career in various parts of Europe. BERRA, MANZONI, RECAMIER, were amongst those who assisted in diffusing a knowledge of the diseases in which it was serviceable, and adding to the means by which, under proper circumstances, we have it in our power to control disorders. Like every other remedial agent it has been variously estimated; some rely upon it, with the most confident certainty, as an invaluable agent, whilst others look upon it with dread, and form a determination not to administer so deleterious a poison. Thus we have the following judgment pronounced upon it by one of the translators of the new Pharmacopœia. "Remedial use. It is commonly used for suicide, and is fit for little else, with the exception of its use externally as a lotion in some cutaneous diseases, attended with intolerable pain and itching, and not extended over too large a surface. On good authority, however, it is recommended in pulmonary irritation (tubercular?) painful affections of the stomach, in neuralgia, hooping-cough," &c. In such language does Dr. COLLIER speak of this remedial agent, nor does the latter part outweigh his opinion expressed in the former part of the sentence.

That hydrocyanic acid is a valuable and most powerful auxiliary in the healing art I firmly believe, but I should, at the same time, feel most anxious to caution you in its employment; it is true that its effects are not, like digitalis, iodine, and some other remedies, suddenly perceptible, after a certain number of doses have been taken; still, the cases that are known to us of the most frightful symptoms occurring where it has been medicinally taken, are sufficiently numerous to instil into our minds the greatest caution. Of this kind is the case that oc-

curred at Friburg, where a patient had, for two months, taken the same quantity of the acid, without any bad effect being perceptible, but one morning was found in bed, after his usual dose, with all the most alarming symptoms of the deleterious operation of the remedy; and though he was ultimately recovered after cold affusion, ammonia, venesection, the state in which he was found must excite great attention in your minds. There is one thing that I must impress on you, that you are not to consider, because you see a physician at an hospital employing fearlessly and boldly the most active medicines, and those in very large doses, that you are justified in doing the same. I would have you bear in mind the very great advantages under which he can prescribe his medicine; he is not only experienced, from his practice upon extreme cases, but there always is, within the walls of the hospital, medical assistance immediately to be procured if any dangerous effect, under the operation of a particular remedy, be visible; or if any untoward symptoms arise during his absence, not only is there an individual always within the walls, upon whose authority the medicine may be discontinued, but the physician possesses a knowledge of what counteracting agent may instantaneously be employed; a diffusible stimulant given at the right moment may immediately check the dangerous operation of a remedy; everything is at hand, there is no time lost; the laboratory is always open, besides which there are regular, well-disciplined nurses (oftentimes of as much experience, from their daily occupations, as some very young practitioners,) are always on the watch, and are themselves capable of judging when danger is present. And, again, a physician in London is warranted in the use of remedies which would be unjustifiable in the country, in consequence of the facility of getting immediately the required medicines in case of need. But to those who reside in the country these advantages are most generally wanting. The patients live at a considerable distance from the practitioners, who are fewer in number; and hours may elapse without the possibility of communicating with the medical man, and having his assistance, should untoward symptoms present themselves. You must, likewise, bear in your recollection, that your doses can never be so strictly adjusted in a private family as in the hospital, where the strength of the medicines is not likely to be variable, where they are generally prepared by well-informed persons, where they are administered at the intervals ordered, and where, indeed, such great advantages are given to the sick, that an individual, under most diseases, is much more likely to recover than he is when surrounded by his own family, however anxiously and affectionately they may watch over the sufferer. Hospital practice, therefore, must not be looked upon as an example always to be followed, though it is of the greatest importance where clinical instruction is given,—not on remarkable cases only, but on every instance of disease within the walls.

These are important considerations, which are seldom dwelt upon, or pointed out, to the young student, who goes, probably, into the country, with the recollections fresh upon his mind of what he has seen his favourite preceptor perform; he has witnessed his successful practice with great interest, and is astonished to find that he is not equally fortunate in his cases, and it often requires a long time to sober the youthful mind, if I may be allowed the expression, and to enable it to see things in their ordinary point of view. Besides which, he has been so much accustomed only to "interesting" cases, and to see new remedies tried, that he has lost all power of judging and controlling ordinary disease. The practitioner, however, who will be most successful, is the one who watches the more common deviations from the usual state of nature, who simplifies his practice as much as possible, by having, at the first onset of disease, recourse only to the milder remedies, which are generally quite sufficient to counteract the earlier symptoms; he thus leaves himself master of the more powerful agents, which he can employ when they are demanded, but it is not uncommon, by immediate bleeding, and by the administration of such remedies as the one I am now speaking of, to see that the disease is aggravated, or so materially altered in its character, as to be unknown even by the most experienced man.

That prussic acid is a most decided sedative, experience teaches us, and that it has power to diminish the excited state of the system, and check the circulation; but it has likewise disadvantages which occasionally preclude the possibility of administering it; sometimes the prostration of strength it produces is not momentary, but continues for a considerable length of time, so effectually overpowering the system as to render it almost incapable of rallying: of these powers you must be on your guard, and deliberately weigh what are the advantages to be gained in the diseases for which it has been zealously recommended, and occasionally administered. If I am not prepared entirely to coincide with Dr. Granville, "that it may be used without danger," I am most willing to concur with him in concluding, "that the prussic acid, given in small doses, mixed with a certain quantity of fluid, may be advantageously employed as a palliative remedy in consumption, with a view of calming the cough, facilitating the expectoration, and procuring sleep." He has, however, given the same caution that I have done, "that great care is requisite on

the part of the medical person who gives it; that it requires to be watched, and that, in fact, such attention and vigilance are necessary in its administration as can only be duly appreciated by a practitioner fully aware of every effect that it may produce on his patient." Dr. Elliotson has introduced it to us as a remedy in functional disorders of the stomach, and I must refer you to his volume for a detail of his success.

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*On the Nature and Treatment of the Diseases of the Heart; with some new Views on the Physiology of the Circulation.* By James Wardrop, M.D., Surgeon to his late Majesty, &c. London: John Churchill, Part I., 8vo., 1837.

Mr. Wardrop has here published the first division of a work on diseases of the heart, in which he has discussed the special points before him in an able manner. Although coming under the classification of physiological, the work does not treat of the physiology of the heart in general, but is confined to particular divisions of the subject, which may be comprised within the following propositions, relative to a set of functions which are connected with the circulation, and which have, as the author conceives, hitherto been overlooked by physiologists:—

1st. The investigations of Mr. Wardrop, on what he calls the musculo-cardiac function, seem to establish that the muscles, besides being the active organs of locomotion, perform the important office of increasing the quantity of arterial, as well as that of venous, blood, within the cavities of the heart.

2nd. That the lungs regulate the supply of blood to the heart, so as to prevent congestions within the cavities of the organ; and,

3rd. That the subcutaneous veins, performing the office of a reservoir, prevent congestion of blood within the pulmonary vessels.

We shall not now institute an examination into the novelty of *all* of the above-mentioned points, but will devote our space to a consideration of the manner in which the author's propositions are illustrated, and make known the ingenious opinions which he develops on the phenomena of respiration and circulation. The action of the voluntary muscles on the circulating fluid constitutes Mr. Wardrop's "musculo-cardiac function." Physiologists have long been familiar with the effect of muscular contractions on the circulation of the blood through the veins, but Mr. Wardrop says that "they never seem to have contemplated what must have been the effect of that compression on the adjacent arteries, although those vessels are, doubtless, alike exposed to its influence." Muscular contractions, however, must have the effect of compressing not only the adjacent, but the more deep-seated arteries, and hence increase the quantity of blood within the heart, by *accelerating* the flow of venous blood, and by *impeding* the transit of arterial blood.

The idea of the musculo-cardiac function, thus announced, is new, and, we believe, belongs altogether to Mr. Wardrop. We have examined several of the standard treatises on physiology, without finding any allusion to this influence of muscular action over the circulation at large, nor have we been able to discover anything which bears on this point in the ably-written paper on the circulation, by Dr. Thompson, of Edinburgh, which is contained in the 7th Number of the "Cyclopœdia of Anatomy and Physiology." At the same time we must say that we have heard several lecturers, both in this country and abroad, mention the fact, that muscular contraction impedes the transit of arterial blood, and even point out the provisions made for the purpose of counteracting that influence; but this falls very short of Mr. Wardrop's announcement of a musculo-cardiac function. The illustrations brought forward by him, in proof of the operation of this latter function, are clear, and evidence the possession of such an acquaintance with physiology as is learned, not from books, but from that more rare species of knowledge which is obtained by a philosophic contemplation of the human frame. Here are a few of them in an abridged form:—

If you examine the radial artery of a man who is powerfully contracting the muscles of the arm, you will find that the pulsations become gradually weaker, and, at last, scarcely perceptible, while the impulse of the heart increases in proportion as the pulsations of the artery diminish.

Again, the arteries of such parts of the body as do not require a uniform supply of blood are exposed to muscular action, while the arteries of the heart, the stomach, the brain, &c., are protected by peculiar contrivances. This permits the muscles to assist in accelerating the motion of venous blood, and impeding the exit of arterial blood from the heart, without causing any local dis-

turbance of circulation, which might be prejudicial.

Whenever the organ requires a constant and uniform supply of blood, certain means are employed to prevent the muscles from comprising the arteries and veins. This is obtained (according to Mr. Wardrop) by circles of anastomosis, as in the lips, stomach, &c.; by the vessels passing along grooves in the organ, as may be seen in the heart; and, finally, by the vessels being contained in a bony canal, which completely protects them from muscular action. The vertebral arteries present the most striking example of this latter provision.

These remarks apply to the voluntary muscles; but the *involuntary* muscles, also, are described by Mr. Wardrop as performing an equally important share in modifying the circulation of the blood; and, in illustration of this, he mentions the influence of the peristaltic motion of the alimentary canal on the circulation, in producing an increased motion of the heart.

Having thus directed attention to the more important points of the musculo-cardiac function, Mr. Wardrop proceeds to show, that the musculo-cardiac function explains several phenomena in the living body, which never could have been elucidated had not a knowledge of this function of the muscles been discovered. In illustration of this, he advances several new and most ingenious ideas, on the phenomena which accompany awaking from sleep; on those which proceed various exertions; on the manner in which a person prepares himself to endure pain; and on the muscular contractions which are observed in the female, preparatory to a powerful expulsive effort during parturition. Mr. Wardrop explains this latter phenomenon by the supposition that voluntary muscular action increases the quantity of blood in the heart, and thus gives increase of strength and vigour to the whole system, by temporarily increasing the heart's action. Upon this point, however, we differ from the author. We think "that the violent and long-continued contractions of the muscles of the extremities, the squeezing with a convulsive effort whatever may be within her reach," observed in lying-in women, may be sufficiently explained by a reference to the necessity of fixing the parietes of the chest, in order to give a *point d'appui* to the abdominal muscles. Besides, it is well known that the contraction of one set of muscles is frequently followed by contraction of another set which has no apparent connection of function with the former; thus, if a man endeavour to make a violent grimace, he involuntarily puts the muscles of his shoulders into action, and even clenches his hands.

The manner in which the supply of blood, both to the right and left of the heart, is modified by the contractions of the muscles, having been explained, Mr. Wardrop examines the *pulmo-cardiac* function. This is performed by the pulmonary vessels serving as a receptaculum, or reservoir, for receiving any surplus quantity of blood, whether venous or arterial, which the cavities of the heart cannot admit. Again, as the pulmonary veins relieve the heart, so the *subcutaneous* veins perform the office of a *receptaculum*, by receiving any surplus quantity of blood which cannot be admitted into the pulmonary vessels. This is the third important function established by the researches of Mr. Wardrop.

We have already conveyed a tolerable idea of the arguments and illustrations by which Mr. Wardrop has established the existence of his musculo-cardiac function. The functions of the pulmonary and subcutaneous veins, as agents modifying the circulation, are treated in the same able and ingenious manner; but we shall refer our readers to the original work, instead of incurring the risk of weakening the author's observations on these points, by subjecting them to the process of analysis. Here, therefore, we conclude, by recommending the present, or physiological, part of this work to the attentive examination of the profession, and, at the same time, entertain full expectations of being much gratified by a perusal of the forthcoming division, on the diseases of the heart, and their treatment.

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*Pathological and Surgical Observations relating to Injuries of the Spinal Chord.* By Sir Benjamin C. Brodie, Bart., F.R.S., &c. London: Longman and Co., 1837.

The author of this volume is, by this time, too well known among the children and champions of nepotism to need description, or an estimate of his literary abilities, by way of preface to a notice of any of his works. We waive, therefore, all attempt to describe either the super-subordinate emi-

nent or his sub-subordinate talents on the present occasion, whether to point a moral or adorn a review. Indeed, he might not be regarded as a fair sample of the offsprings of the nefarious system which elevates the few in the profession at the expense of the many. Moreover, the proper mode of valuing these plants of corruption is to take the whole hotbed of hospital functionaries, and weigh their fruit against the like produce of another capital, where the candidates for office in the eleemosynary institutions for the sick are exposed to the mental trial of the concours. Let some friend of the free and open system of election take the trouble to collate the productions of the latter, while in office, and place them before the governors of our medical charities in juxta-position with the miserable collection of observation which have emanated from the medical officers of the British metropolitan hospitals; and if he startle not his audience with this comparison of the relative contributions to science and humanity, their minds and feelings must be too cataleptic for arousal by any shock less powerful than that of an electric rap from the legislature, well applied to the doors of the London hospitals.

The obvious analogies existing between the brain and the spinal marrow would indicate a close resemblance in their pathological conditions. Writers in general, though diffuse enough with observations on the injuries and diseases of the encephalon, had given but slight attention to the affections of its vertebral portion, influenced probably by the prevalent belief that the lesions of the two organs were identical. So at least thought Sir Benjamin Brodie, who accordingly published the work before us, as the result of the experience which his situation has afforded him on this subject. The facts which he has adduced are not uninteresting, but they are, for the most part, very common-place, and we look in vain throughout the whole production for evidence of superior powers of observation or induction in conducting his investigations.

Wounds which penetrate through the external parts into the spinal chord are almost invariably fatal at an early period; the examples of recovery from them, which have been recorded, are few in number, and lead to no important rules of practice. All the facts relating to this point may be obtained from M. Ollivier's book on diseases of the spinal chord. The other and more common varieties of injury to the spinal chord the author classes in the following manner:—

"*First.* Fractures of the vertebræ without displacement of the fractured surfaces.

"*Secondly.* Fractures with displacement of bone, diminishing the diameter of the canal, and making pressure on the chord.

*Thirdly.* Fractures complicated with dislocation.

"*Fourthly.* Dislocations not complicated with fracture. Mr. Lawrence and Sir C. Bell have published cases of such injuries.

"*Fifthly.* Extravasations of blood on the surface of the membranes of the spinal chord. These rarely take place to any considerable extent, and bear no comparison with those which occur within the cranium.

"*Sixthly.* A narrow clot of extravasated blood is sometimes found within the substance of the spinal chord. It is always of a very small size, but from its situation may be productive of the most dangerous symptoms.

"*Seventhly.* Laceration of the spinal chord and its membranes. There are many varieties of this injury. M. Ollivier describes a case in which the attachments of the nerves on one side were destroyed.

"*Eighthly.* The minute organisation of the chord may suffer from a blow inflicted on the spine, even where there is neither fracture nor dislocation, and where the investing membranes do not participate in the injury. In such cases, the central part is found a short period after the accident to be softer than natural, its fibrous appearance being lost in that of a semi-fluid substance. If the patient survives for a longer period, the alteration of structure is perceptible in the whole diameter of the chord, and occupies from one to two inches, or even more of its length; and at a still later period it had often proceeded so far as complete dissolution.

"This disorganisation, softening, and final dissolution, of the spinal chord is the most common consequence of injuries of the spine, and the dangerous symptoms which follow these accidents, are, in the majority of cases, to be attributed to it."

In a paper on injuries of the brain, published in 1828, Sir Benjamin observes that "in cases of concussion of the brain we are not justified in concluding that because no changes are to be detected after death, there is, therefore, in reality, no organic injury." It is difficult to conceive in what other manner concussion of the brain can operate, so as to produce the effects which are known; and if we consider that the ultimate structure of the brain is so minute that our senses cannot ordinarily detect its characters, it is evident that there may occur changes in

that organ which are equally beyond the reach of our senses. The speedy subsidence of the symptoms in some instances does not oppose this position. A deep incised wound, in other parts, may, under certain circumstances, completely unite in twenty-four hours, and it is easy to suppose that a less extensive injury may be repaired in a shorter space of time."

These remarks are equally applicable to cases of concussion of the spinal chord. We cannot doubt that the nature of the injury is the same in both organs. It is true much worse consequences usually arise from concussion of the spinal chord than from concussion of the brain; that is, if the patient recover, his recovery is more tedious, and if he die, greater changes in the condition of the injured part are detected on dissection. These differences are easily explained. The brain and its membranes completely occupy the cranium, while the spinal chord and its membranes occupy only a part of the vertebral canal, and the greater liability to succession in the one case than in the other will be obvious to all as the cause of the greater degree of injury. Our author proceeds:—

"The effect of a violent concussion is at once to impair, and even to destroy, the functions of the spinal chord, sometimes even causing the patient's death in a few hours; and the question then presents itself, what is the nature of the injury thus inflicted on the spinal chord, so trifling in appearance so great in reality, which is capable of producing such important and dangerous consequences?"

After regretting that he had not put in practice an experiment which he had long contemplated, namely that of macerating the injured chord in alcohol, and afterwards tracing the fibres, he thus continues:—

"The softening and dissolution of the chord, which takes place afterwards, have, I know, been regarded as the consequence of inflammation, but, on the following grounds, I doubt the accuracy of the conclusion. 1st. An examination of the injured part will often enable us to detect the commencement of the softening process at a very early period, before sufficient time had elapsed for inflammation to commence, and before any symptoms of it have appeared. 2nd. The softened part of the chord, in the first instance, exhibits no appearance of increased vascularity. 3rd. Even where the softening process is so far advanced as to occasion complete disorganisation of the spinal chords, the investing membranes, for the most part, exhibit their natural appearance, their being neither increased vascularity, nor the slightest effusion of lymph, or serum, or pus, on their surface. 4th. The symptoms which mark the progress of these changes are merely a continuation of those which the concussion has occasioned in the first instance, and which, of course, must have been wholly unconnected with inflammation."

The enlargement of the small vessels which attends the disorganisation of the spinal chord, is no more than what happens in the progress of any other disease. A scirrhous or fatty tumour, or even a neuralgia, is accompanied by inflammation, though that morbid phenomenon has nothing to do with the origin or essence of either of these diseases:—

"There is a manifest resemblance between the softening of the spinal chord which follows mechanical injury, and that softening of the brain and spinal marrow which takes place from internal causes, and first described by M. Rostan under the name of *Ramollissement du cerveau*. M. Andral properly rejects the notion that this change is the mere result of inflammation, for we often meet with cases where there is no sanguineous congestion, nor purulent effusion, nor morbid secretion; a simple diminution of consistence being all that is to be seen."

Having thus discussed the pathology of these injuries, our author considers the semeiology. He refers the symptoms that immediately succeed the injury, 1st, to concussion of the spinal chord; 2nd, to laceration or division of its substance; 3rd, to pressure made on it either by displacement of bone or extravasated blood. Afterwards, inflammation of the membrane of the chord may take place, and other organs may be secondarily affected, giving rise to an order of symptoms which did not exist in the first instance. We compress the writer's remarks into a small compass; he arranges the symptoms under the following heads:—

1. Paralysis of the voluntary muscles below the seat of injury, is the most obvious effect of a severe lesion of the spinal chord.

If the chord be divided through its whole substance, or extensively lacerated, or subjected to a great degree of pressure, the paralysis is immediate and complete. If the injury be partial, certain muscles may be paralysed, while others retain their power

Concussion of the spinal chord, also, produces complete paralysis frequently, but very often partial paralysis. One limb may be

paralytic, and another not so; or in the same limb certain muscles may be thus affected, whilst others are still obedient to the will. In some cases the patient has the power of using the limbs, whilst he is horizontal, and yet is unable to stand erect; or the degree of paralysis may vary at different periods.

Thus it may be complete at first; then after three or four days the power may, in some degree, be restored; then it may be lost again. Sometimes, although the paralysis is complete, or nearly so, in the first instance, a recovery takes place in three or four weeks, or sooner; or, although there is no more than a weakness of the muscles, immediately after the accident, complete paralysis may take place, sometimes gradually, at other times almost suddenly, after the lapse of several weeks.

Paralysis of the lower limbs is more common than that of the upper. In some cases where the injury has affected the spinal chord in the lower part of the neck, the lower limbs are rendered paralytic, while there is either no paralysis or a less degree of paralysis in the upper limbs. The reason of this is obvious to any one who considers the origins of the nerves which form the axillary plexus, some of them being probably above the part which is injured; but the circumstance is still remarkable in this respect; that it is contrary to what happens when the functions of the spinal chord are interrupted in consequence of caries of the cervical vertebræ. In these last cases the paralysis is often complete in the upper limbs, for many weeks, before if extends to the lower.

Paralysis, after an injury of the spine, is always a dangerous symptom, but many persons thus affected recover.

Having adduced one or two examples of recovery, the author proceeds to consider;

2. *Muscular spasms.*—A gentleman was thrown from his horse, which afterwards rolled over him. His head was not struck, and the principal injury had fallen on the lower part of the spine. Soon after the fall, and while he was yet lying on the ground, his thighs were raised spasmodically towards the trunk, and this was followed by an involuntary tremor of the lower limbs. Afterwards the lower limbs became paralytic, and continued in that state for two months. He then began to recover, and about a year after the accident he was able to walk without a staff.

Sir Benjamin conjectures that these spasms, when arising after injury of the brain, or spinal chord, proceed in consequence of a slight extravasation of blood, which is sufficient to operate as a cause of irritation, without actually destroying the functions of the organs.

3. *Affections of the nerves of sensation.*—If the spinal chord be lacerated, or subjected to any considerable degree of pressure, the sensibility of the parts below the seat of injury is totally destroyed. If the injury be in the situation of the *sixth* or *seventh* cervical vertebræ, the destruction of sensibility is frequently partial in the upper extremities, while it is complete in the trunk and lower limbs; but if it correspond with the two vertebæ immediately above these, the patient, during the short remainder of his life, presents the extraordinary phenomenon of a living head, with its sensibility and muscular powers unimpaired, attached to a trunk and members of the existence of which it is totally unconscious.

In cases of concussion of the spinal chord, there are the same varieties with respect to the destruction of sensibility as of voluntary motion. Sometimes it is every where complete; at other times it is complete in one part and not in others; or the sensations may be dull in every part of the body, although not totally destroyed. Occasionally the skin is insensible, the patient being conscious of pressure made on the deep-seated parts. Where recovery takes place, the restoration of sensibility usually precedes that of voluntary motion.

4. *Affection of the respiration.*—It is well known that if the spinal chord be divided or torn above the origin of the phrenic nerves, immediate death is the consequence, the nervous influence being no longer transmitted to the diaphragm or other muscles of respiration, and the animal perishes in the same manner as in strangulation. If respiration be artificially kept up, by inflating the lungs, the action of the heart may be maintained, so as to cause life to be prolonged for several hours.

Pressure on the superior portion of the spinal chord, in consequence of dislocation or fracture, is attended with a similar result. Dislocations of the first and second vertebræ, do not prove fatal in this manner in every instance. On one occasion, where, from the giving way of the transverse ligament, the odontoid process formed a considerable projection into the spinal canal, the dura mater was entire, and prevented the dislocation from being complete. The pressure on the chord was not sufficient to destroy its functions, but it operated as a cause of irritation, producing effusion into the ventricles of the brain.

When the chord is injured immediately below the origin of the phrenic nerves, there is nothing to interfere with the due action of the diaphragm, while the intercostal muscles, as well as those of expiration, are paralysed. The patient, therefore, breathes by the diaphragm only. The ribs

are motionless, and the air is expelled from the lungs, not by the contraction of the abdominal muscles, but simply by the elasticity of the abdominal parietes, and the pressure of the abdominal viscera operating on the lower surface of the diaphragm. Such imperfect respiration seems insufficient for the maintenance of life; the patient seldom survives to the sixth day, and frequently dies in forty-eight hours.

Injuries of the spinal chord in the lower part of the neck are not necessarily followed by these results. The pressure on the spinal chord may be so small, or the disorganisation of it, from concussion, may be so trifling, that the muscles of respiration are not affected by it.

In proportion as the injury affects the spinal chord lower down the back, so the respiratory function is in a less degree impaired.

5. *Priapism* is a very common symptom of injury of the spinal chord, although, ordinarily, the erection of the penis is the result of a communication from the sensorium. I have never known it to occur in these cases except in combination with paralysis. It may take place whether the patient suffer from the effects of simple concussion or from pressure. It also seems to be connected rather with injuries of the upper than of the lower part of the chord.

6. *Affections of the urinary organs.*—Paralysis of the lower half of the body is attended with an inability to void the urine. In the majority of cases the patient is not sensible of any inconvenience; he is unconscious of the bladder being distended, but there are exceptions to this rule.

The incapability of voiding the urine is usually an early symptom. When a recovery takes place the power of emptying the bladder is first restored. Where the catheter is not employed, the urine flows involuntarily.

The first effect of a severe injury of the chord is often a diminution in the secretion of urine. This is most observable in injuries of the lower part of the *neck*. The same thing, however, occasionally happens when the injury is in the lower part of the spine.

In some cases, the urine which is first secreted after the accident, although of an acid quality, and free from mucus, has an offensive odour. In other cases, the urine is highly acid, having an opaque yellow appearance, and depositing an amorphous ediment.

But the most common change of the urine in these accidents is, that it is voided with a putrid and an ammoniacal odour; when allowed to cool and remain at rest, it deposits a quantity of adhesive mucus, and when tested it is found to be alkaline. After a time a quantity of white matter may be detected in the mucus, and it is tinged with blood. At a still later period a quantity of coagulated blood is blended with the mucus and urine.

In many cases the quality of the urine varies from day to day. It may be alkaline, depositing adhesive mucus; then clear and acid; then alkaline again.

Such adhesive mucus as is here described, is never a constituent of the urine as secreted by the kidneys, but is furnished by the mucous membrane of the bladder and ureters when in a state of inflammation. It is an interesting question whether the inflammation producing this secretion (and which dissection verifies) is a primary or secondary disease. This must be determined by future observation.

7. *Affections of the digestive organs.*—In the first instance, whatever the seat of injury, the bowels are torpid; then the abdomen becomes tympanitic. When the fæces have reached the rectum, the evacuation takes place without the knowledge or will of the patient. In some cases there is a disposition to vomit. In more protracted cases the dejections are of a black colour, semi-fluid, and offensive.

8. *Alteration of the vital temperature.*—A man was admitted into *St. George's Hospital*, in whom there was a forcible separation of the 5th and 6th cervical vertebræ, with an effusion into the theca vertebralis, and laceration of the spinal chord. Respiration was performed by the diaphragm only; the man breathed at long intervals; the pulse being weak and the face livid. Nevertheless, when the ball of a thermometer was placed between the scrotum and thigh, the quicksilver rose to 111° Fahr. He died in twenty-two hours.

9. *Gangrene* is the result of a diminution of the vital powers, attendant on injury of the spinal chord, and sloughs are formed on the slightest pressure.

10. *Affection of the sensorium* is evident immediately after the accident, and is not considerable except where the injury was in the cervical portion of the medulla spinalis, and the results are different in different cases, delirium, coma, insensibility, are often witnessed.

Sir Benjamin makes rather a long enumeration of miscellaneous symptoms, not included under the previous heads. The variations of the pulse, inflammation of the membranes of the spinal chord, &c., are copiously discussed.

Cases of recovery after severe injury of the spinal chord are by no means uncommon. If it suffer from the effects of concussion, the recovery may be complete; the period of recovery varying from three weeks

to twelve months, or more. If the chord be lacerated, or much compressed, the patient may live, but without recovering from the paralysis.

With regard to the treatment of these grave accidents Sir Benjamin recommends great caution to be observed in attempting to reduce the displaced bones. There is always much danger in such attempts. He altogether condemns Mr. Henry Cline's plan of trephining the vertebral arches. Repose, and the horizontal posture, will immediately suggest themselves to the surgeon, who must exercise his best judgment in determining whether an active or a passive antiphlogistic, or a gently stimulant series of means, is best adapted to the actual condition of the patient.

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## THE LANCET.

*London, Saturday, August* 26, 1837.

DR. MACARTNEY has resigned his Professorship in the Dublin University, a course which we understand he has been driven to adopt by the unceasing persecutions of his rival brother-professors in the King and Queen's College of Physicians. The election to the vacant chair will take place in the month of October, and the University proposes to give 200*l.* per annum to the new Professor, instead of exacting an income for him from the general students in the shape of fees. The Professor is to have, in addition, whatever sum he can derive from voluntary attendants on his lectures. The latter amount, however, would prove by far too insignificant to induce any teacher who is already thriving in another quarter, to become a candidate for the Professorship in Dublin, at which University there do not pass, we believe, more than half-a-dozen M.B.'s annually. The class by which this select number is furnished cannot prove sufficiently remunerating to act as a temptation to forego one bone to snatch at another. If the information before us be correct, the anatomical and surgical class at the School of Anatomy in the Dublin University, has latterly been reduced to its present limits by the obstacles thrown in the way of Dr. MACARTNEY by brother Professors who do not like such a foil in their field of tuition. The annoyances to which that independent Professor has constantly been subjected for a long time past will afford matter for a curious history on a future occasion.

It is impossible, whenever such vacancies as these occur, to avoid recognising the amazing impetus which would be imparted to science by the adoption of the concours in this country. Were that process about to be put in operation at Dublin in October, the whole profession would be alive with interest at the prospect of a splendid collision of talent, where expectation would have experienced no disappointment from the want of well-prepared competitors. At present the election is regarded with feelings of total indifference everywhere, beyond the little knots of supplicants for favour at the chamber-doors of members of the electoral Board.

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THE labour of preparing a yearly retrospective view of improvements in the science of medicine, is at once a highly agreeable and most useful task, both to the writer and the profession,—agreeable, because it enables the mind to feel *assured* that the progress of medicine corresponds with the exertions which are made on its behalf; and useful, as a stimulus to further exertion among those who are honourably labouring in the cause of humanity, while it also supplies an exact account of discoveries already recorded, for the use of those who might otherwise remain ignorant of some of the numerous important facts which the research of the author of the retrospect should comprise in his address.

The consignment of this very interesting and important task to the hands of a half-educated, ill-informed, and feeble-minded

man, would present an instance of treachery towards the noble art of medicine, and of imposition on its disciples, so melancholy, that it is difficult to suppose that the guilt of betraying such a trust could attach to any person, or coterie of persons, in whom pure ignorance of the labour to be performed, and of the competency of the proposed executor, was not the most prominent characteristic. It is possible that another cause might operate with those who had to award the duty of reviewing the annual advance of a particular science. Regardless of qualification for the task, they might weakly yield to certain importunities, and assign the honour to some incapable personage, who was ambitious of addressing the public as Chancellor in the Court of Science, without fitness for the office in any one respect. Or, again, the trustees of the retrospect might seek to confine to a certain set the honourable post which is within their gift. Such treatment as this the public is ever liable to suffer under a bad system of government among the executive powers who wield the destinies of science.

We have already exposed the operation of some of these evil influences in the appointment of Presidents and Orators in the PROVINCIAL MEDICAL ASSOCIATION. Competence for office has there been prostrated to possession of title, and new instances of absurd and ludicrous results do not continue to be wanting in these departments. 'Tis a pity that we have not, at this moment, within reach, the specimens of taste, judgment, and cultivated intellect, which were afforded at the recent Cheltenham dinner, by the President elect for the ensuing year. However, were the extracts close at hand, we could not devote space to quote them, as we design, this week, briefly to illustrate the unfortunate results which occur to the conductors of the Provincial Association, in selecting agents for concocting their annual Retrospective Addresses, the last of which that is before us, in official form, is that of Mr. JOHN GREEN CROSSE, of Norwich, a brother PURE of the sister DUBS in the migratory Club.

Although we cannot agree with Mr. CROSSE, that the mind of a retrospective reviewer ought to be, as he confesses that *his* mind was, "oppressed by the immensity of the task," yet we admit that the labour was somewhat difficult for a gentleman of the mental capacity of Mr. JOHN G. CROSSE. However, he should not have courted the oppression; but since it happens that his vanity was gratified by concession, we shall rather incline to be supplementary than critical, for, as LA BRUYERE has justly said, "Celui qui pour satisfaire à un devoir, "dont il ne peut se dispenser, a de grands "droits à l'indulgence de ses lectures."

Normal anatomy forms the first division of the retrospective oration of Mr. CROSSE, who remarks that but few contributions to human anatomy have recently appeared, our advancement in this branch of science being confined to BRESCHET's researches on the structure of the skin, MULLER's description of the arteries of the penis, and the discovery of two minute bursæ, and a single nervous ganglion. But we have it in our power to enlighten the mind of Mr. CROSSE by an extension of his catalogue? Without dwelling at any length on the original observations of M. COSTE, on the anatomy of the embryo, published at the end of 1834, and illustrated by some magnificent drawings, we may mention, as a supplement to the list furnished by the Norwich Pundit, the discovery of an inferior intermaxillary bone, by M. CHASSAIGNAC, and of the cavernous ganglion and cavernous plexus of nerves, by MULLER, an account of which was published in this Journal. We may also remind him of the researches of Dr. ALEXANDER THOMSON, son of the Professor of Medical Jurisprudence, in University College, in the anatomy of the perineum, and of hernia in general, some of whose researches (which have been considered by M. VELPEAU of sufficient importance to be embodied in the last edition of his work on Surgical Anatomy) may be found in the 31st and 35th Numbers of

the *Gazette Medicale*, of Paris, for 1835, the whole of them being within reach of a diligent and competent reviewer. The contributions to the pathology of the fluids have been, Mr. CROSSE remarks, in his address, but very few. Yet of those few he failed to avail himself by adding to his list a notice of the memoir of M. DONNE on the alkaline and acid properties of the saliva, corresponding with certain conditions of the stomach. He has equally omitted to mention the fact of the discovery of sugar in the blood of diabetic patients, made at the hospital of Pisa, by AMBROSIONI, and published in THE LANCET, 1835, vol. i. p. 254.

Passing from the pathological to the surgical division of the "Address," the following remark is conspicuous in the text:—"From the pen of Dr. MACARTNEY we have "the affirmation that inflammation, so far "from being necessary for the generation "of tissues, retards that process when mo-"derate, and prevents it when existing in a "high degree." This is a strange announcement in the Retrospect of the Provincial Association for the year 1836. Its author, if we mistake not, once enjoyed the honour of being Dr. MACARTNEY'S demonstrator, and he now announces, as a novelty of the year 1835, a fact which his distinguished master has taught, with pride, for twenty years at least! We thought that all the world had been familiar with Dr. MACARTNEY'S theory of inflammation, with his practice of water-dressing. It has been published over and over again by his pupils, republished by Mr. SYME, of Edinburgh, laughed at by the superficial, and received by sound observers in physiology as a doctrine of the highest value. Let us turn to the surgical announcements in the "Address."

Mr. CROSSE informs us that tracheotomy, in cases of croup, has lately been performed with a share of success which does not quite condemn the practice; and, in a foot note, alludes to a patient who was operated on by CHOMEL, together with twenty-one other cases, for any information concerning which we are referred by him to "*Kleinert's* "*Repertorium*, for Feb., 1835, page 66." On this let us observe, that the operation alluded to was not practised by M. CHOMEL, and, at the same time, we take the opportunity of intimating (usefully, perhaps, as regards a retrospect at the concluding anniversary of the Association) that it is truly unorthodox to refer to a Leipzig journal for an account of operations which were performed at Paris. The original account was published in the *Journal des Con. Medic.*, for 1834, where Mr. CROSSE may learn the results of twenty-seven operations of tracheotomy in croup.

The observations of Mr. CROSSE upon hernia, and on ligature of the carotid arteries, are so far complete, that, as regards this part of the address, we shall only advert to the omission of all mention of "Inguino-in-"terstitial hernia," first accurately described by Dr. GOYRAUD;* and refer, for further information on ligature of the carotids, to a curious paper, by Dr. F. BIRD, "on the ligature of the carotids, as a means "of cure in certain forms of mental de-"rangement."

Midwifery, and the diseases of women and children, must form an important division of any retrospective address on the improvement of medicine; accordingly, it occupies a considerable portion of Mr. CROSSE'S attention. He commences, however, rather unfortunately, in a literary point of view, by stating that we are indebted for the operation of episoraphe to Dr. MARSHALL HALL, and omits mentioning the much more simple, and (to the wife) more convenient operation, proposed by DIEFFENBACH, of contracting the vagina by cutting out slips of the mucous membrane, somewhat similar to the process pursued for the cure of prolapsus ani. In speaking of the circumstances which may complicate natural labour, Mr. CROSSE draws attention to certain *varices* of the labia, often attaining an enormous size, burst-

* The particulars, in English, may be found in THE LANCET, vol. i., 1835, p. 450.

ing during the expulsion of the child, and sometimes producing fatal effects, and, with laudable industry, has collected a considerable number of these cases; but, although so elaborate in this respect, he has omitted other cases which equally demanded notice.* The literature of the Cæsarean operation occupies the full share which it merits, in the "Address." The author refers us to thirteen cases, lately performed in France, Italy, and Germany, and to one in England. A record of such cases is useful, and will always spare an infinity of labour to persons who are inclined to write upon this obstetrical operation; we, therefore, beg leave to add the following cases:—

*Case* 1.—By Professor Konn, at the hospital of Gratz. The woman 25 years of age. The pelvis so excessively narrow, as scarcely to admit the finger; the operation performed in the linea alba. The woman died in 48 hours; uterus and bladder found in a gangrenous state.—*Medicin. Jahrbücher des oster. Sta.*, vol. ix., No. 4, p. 617.

*Case* 2.—By Dr. Wiepel. The woman 21 years of age; three days in labour; pelvis deformed; the wound in the uterus united by a ligature; followed by recovery.

*Case* 3.—By Dr. Wittzack. The woman 38 years old; four feet high; five days in labour; the pelvis narrow; recovery in five weeks.—*Med. Zut. Berlin*, No. 13, 1836.

*Case* 4.—By Dr. Buren. The woman 37 years of age; her eighth child; the pelvis deformed; the child saved, but the mother died in 13 days.—*Ibid.*

*Case* 5.—By Dr. Witlekop. Narrow pelvis; mother and child both saved.—*Klein Repert., and Lancet*, vol. i., 1835.

*Case* 6.—By Dr. Von der Fuhr. The woman 36 years of age; twelve hours in labour; narrow pelvis; patient well in seven weeks; the child lived for five weeks only.—*Ibid.*

Having said thus much on the obstetrical division of the Retrospective Address, we shall merely add, that the author of such a document might have alluded, with benefit to his auditory, to the method of treating vesico-vaginal fistulæ, proposed by Dieffenbach, of Berlin, and to the celebrated memoir on excision of the neck of the uterus, which Lisfranc presented two years ago to the Institute of France.

The diseases of children are, we find, quite beneath the little gentleman's notice. We shall, therefore, content ourselves with hinting to him that those diseases constitute an important subdivision of inaladies in general, and that, professing to be a surgeon he might certainly have pointed out the operation for club-foot, lately brought into notice by Stroymeyer, described in The Lancet so long since as the date of vol. ii., 1835, p. 648, and practised with so much success in Paris, by MM. Duval and Bouvier, and since in London, by Dr Little. The improved treatment of chorea by sulphur-baths, and by the cold affusion and, finally, the progress made in our knowledge of the disease called "Hydrocephalus," by the discovery of tubercular meningitis, were also circumstances that deserved an attention which they have not received, even in the most trifling degree, on this occasion.

* One, that of a woman, 41 years of age, with a tumour as large as a child's head, occupying the right labium; this burst, and the woman lost a quantity of blood, and died, after a quarter of an hour, in convulsions. A second, a fatal case also, in which the woman had been twenty hours in labour, when a large varix of the labium burst, and the patient sank under the hæmorrhage. The third case, that of a woman, 34 years of age, pregnant for the eighth time, in whom the labour was going on regularly, when a large tumour in the labium, burst, and the woman was carried off before assistance could arrive. If hypercritically inclined, we might here remark, while speaking on this interesting point, that the case referred to by Mr. Crosse, in a foot-note to page 95 of the Address, and marked *Kleinert's Repertorium*, Mai, 1835, p. 31, is not to be found at the 31st page of that work, nor anywhere in its neighbourhood.

## MR. BUSH'S CORRESPONDENCE WI H SIR H. HALFORD.

SECOND LETTER TO THE EDITOR FROM MR. BUSH.

*To the Editor of* The Lancet.

Sir:—In the *Times* of August 15, extracted from the *Medical Gazette*, there is a garbled statement of the correspondence which took place between me and Sir Henry Halford, which correspondence you did me the favour to publish in The Lancet.

There are some remarks by the Editor of the medical periodical, in which the writer assumes more than he was warranted to do from the published letters; and he suppresses a sentence in the Baronet's first letter, which is of some importance. The whole sentence runs thus:—"I declare, upon my honour, that I never made a defamatory observation (your own word) on the conduct of a professional person who had advised Mrs. Theobald previously to my seeing her; *nor did the circumstances of the case call for any remark on the treatment to which she had been subjected.*" The part in italics, is that part which the Editor of the *Gazette* has thought proper to omit. There is another point in the critique, wherein the Editor flounders a little. He infers that there was a difference of opinion between Sir Henry and myself, as to *the treatment* of Mrs. Theobald's case. How he was enabled to draw such an inference I know not, as Sir Henry admits, in his second letter, that *he did not know how I had dealt with the case*, and he has not informed me how he treated it himself. The same writer in the journal assumes that I first lost my patient, and then my temper. I will allow the Editor of the *Gazette* to form his own opinion as to my loss of temper, but I will put into your possession a note which I received from the Rev. Mr. Theobald, dated the 29th of April, many days subsequent to his candid communication to me respecting Sir Henry Halford's opinion of my medical talents. This note will show that the reverend gentleman was then anxious for my professional advice, and my reply will demonstrate that *I* refused to give it. I am, Sir, your obedient servant,

FRANCIS BUSH.

Frome, Aug. 20, 1837.

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(*Notes referred to in the foregoing letter.*)

"Mr. THEOBALD presents his compliments to Mr. BUSH, sen., and will feel obliged by his calling over at Nunney *early this morning*, to see his eldest little girl, who is suffering from a very bad cough.

"Nunney, April 29, 1837.

"F. Bush, sen., Esq., Frome."

"Mr. BUSH can never hold any communication with Mr. or Mrs. THEOBALD until his character as a medical man has been quite cleared from the imputation of want of skill thrown on it by Sir HENRY HALFORD, through them.

"Frome, April 29, 1837.

"To the Rev. T. Theobald, Nunney Rectory."

## ENGLISH PHYSICIANS PRACTISING IN FRANCE.

[THE following history of the late prosecution of English physicians in France, is derived from the *Boulogne Journal* of August 12th, the concluding paragraph being supplied by a correspondent.]

As the following statement reveals to us the decision of the highest court in the kingdom, on a question of some importance to our countrymen who reside in or visit France, we lay it before the public, as our desire is that both sides of a question which has now for some time occupied the public attention should be seen. This account is taken from the *Courier des Tribunaux*, (Journal of Jurisprudence), May 28, 1828:—

"Desirous of reaching the source of the unfortunate discussions regarding the English physicians, discussions which at this moment occupy the attention of every body, and injure so deeply the interests of our town, we have discovered their origin, we believe, in an action at law which took place at Boulogne in 1828, an action which we are eager to publish at this time, in order to show how favourable our judges (in France) were to the principle which recognises the free practice of medicine by foreign physicians among their own countrymen.

"TRIBUNAL OF CORRECTIONAL POLICE,
BOULOGNE SUR MER.
(Private correspondence.)

"'*Can a foreign physician who is not authorized, and notwithstanding the law of* 1803, *attend professionally his own countrymen who reside in France?*'

"The following are the circumstances which have given rise to this question:—

"Drs. C—— and R——,* English physicians, came to establish themselves at Boulogne several years ago, and practised conjointly with the French physicians, having previously obtained a Royal Ordonnance, and paid the licence of a physician.

"Drs. Allatt, Sabine, and Derbishire, also came to fix themselves at Boulogne in 1827 and 1828, and solicited the authorization to practise their profession. But in 1826, M. de Corbière, at that time Minister of the Interior, decided that for the future those foreign physicians only should be acknowledged who had made useful discoveries, or who had rendered some essential service to France. In consequence the minister answered, that the authorization solicited could not be granted, but if the petitioners would *confine themselves to practise among their own countrymen*, he saw no objection to their doing so, and that they did not require any authorization for that purpose.

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* Drs. Campbell and Robertson.

"Dr. Allatt and his associates furnished with the answer, did not hesitate to visit professionally those of their countrymen who asked their advice, to affix their signatures to their prescriptions, and even to place on their doors brass plates, bearing their names, and indicating their profession, agreeably to the custom in England.

"Thus Drs. C—— and R—— saw a part of their patients pass into the hands of their fellow practitioners, and the Procureur du Roi, struck that the denunciation above specified implied an infringement of the law of 1803, summoned Dr. Allatt and his associates before the Tribunal of the Correctional Police, to be there condemned to the penalties specified. He maintained in Court,—First, that the law in 1803 altogether prohibited the practice of medicine by foreigners, even among their own countrymen, unless they were furnished with a licence from the government. Secondly, That the letter of the minister, although it might prove good faith, and serve as an excuse, was nevertheless insufficient to confer any right on those who used it, because a ministerial decision, much less a simple opinion, could not subvert a pre-existing law.

"It was pleaded for the accused, that the law of 1803 was intended only for foreigners who came into France to practise medicine among the French, and not for those who should confine their practice *among their own countrymen;* that foreign invalids were always at liberty in France to give their confidence to whomsoever they wished, and that he could never be considered as a public practitioner who confined his practice to foreigners.

"The Court, adopting these views, gave the following judgment:—'Considering that Philip Derbishire, John Sabine, and Christopher Allatt, have attended professionally their own countrymen only, they cannot be considered as having infringed the law of 1803.'

"'That if foreigners who neither speak nor understand the French language, could not be treated by professional persons of their own nation, their existence would often be compromised, because they could not give the French physicians the necessary information to enable them to prescribe the remedies their situation might require.'

"'For these reasons the Court acquit the accused.'"

Prior to 1826, authorization to practise was granted with great facility. The foreign physician had only to forward a copy of his diploma to the Minister of the Interior, and he therefore received, without further inquiry, the permission he solicited; but the government having ascertained that some foreigners had made use of *spurious diplomas*, found it necessary to interfere.

[The Courts of Boulogne and St. Omer have lately reversed their decision of 1828, and an English physician has been tried, found guilty, and fined, for practising among his own countrymen only. Individuals, calling themselves physicians, and bearing the name of Englishmen, have been found sufficiently base to act the parts of common informers against their own countrymen. What, therefore, have Englishmen to expect from foreigners, although, to their praise be it spoken, none among the French have yet been found so degraded as to follow the example set them by others.—J. W.]

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## THE MEDICAL OFFICERS OF THE NOTTINGHAM MEDICAL CHARITIES AND THE LANCET.

### MR. A. BARNETT'S EVIDENCE BEFORE THE POOR-LAW COMMITTEE.

*To the Editor of* THE LANCET.

SIR:—I hoped, when I retired from the duties of my profession to this remote spot, in order to devote my time to the study of nature in her favourite haunts, that I should be no longer annoyed by those unpleasant collisions which it had been my lot to be more or less engaged in, during the whole time that I lived in Nottingham; and still less did I think that I should have to deprecate the wrath of the Editor of THE LANCET. I received a letter from a non-medical friend yesterday, containing extracts from Mr. Absolom Barnett's evidence, before the Committee of the House of Commons, and referring me to some observations in THE LANCET of July 1, on the conduct of the Honorary Medical Officers of the Nottingham Union Hospital and Dispensary. My not having seen THE LANCET before, is a sufficient excuse for this tardy notice, but I am not a little surprised that my former colleagues,* who I thought were jealous of their good name, and who I never should have suspected would quietly submit to be held up to the scorn of their professional brethren, should allow those observations to pass unnoticed. I must confess that, for my part, I feel hurt by your remarks, and more especially so, because the stern, uncompromising opposition of the Editor of THE LANCET to the unconstitutional powers and tyrannical conduct of the Poor Law Commissioners,—to say nothing of the many invaluable benefits which a long and successful opposition to corruption has conferred on the profession,—had, notwithstanding some defects in his proceedings, obtained

* Why two only of the four honorary officers should be mentioned I cannot understand.

for him my gratitude and esteem. I trust that I shall be able to show that the connexion of the Honorary Medical Officers of the Nottingham Union with the Board of Guardians, was not discreditable to the former, and therefore that your censure is undeserved.

The offence of which we are accused, if I recollect aright, for I have not the Number, is, that by our having volunteered our services, as honorary officers, we sanctioned the conduct of the Guardians in giving a paltry remuneration for the services of a professional brother, thereby injuring the character of the profession.

It must be acknowledged that the duties of the resident surgeon to the Union are, at all times, onerous and deeply responsible. The medical establishment consists of an hospital, which formerly contained forty beds, but, I believe, lately the number has been increased to sixty; and a dispensary for the relief of the home and out-patients. The total yearly number of patients used to average about 2500, but the number for the last year I suspect has not fallen much short of 3200. The whole of this duty devolves upon the resident surgeon, subject to the superintendence of the two honorary physicians and the two honorary surgeons. The Guardians provide every requisite, without restriction, and a dispenser, at a salary of sixty pounds per annum; and, whenever there has been an unusual amount of sickness, they have engaged the services of a qualified young man, at the rate of five guineas per week, to assist the resident surgeon. With regard to the salary, 120*l.* per annum, it certainly is trifling, nay, paltry, if it were the sole remuneration for such arduous services. In fixing the salary thus low the parochial authorities were influenced by these considerations:—

"It is our duty to the rate-payers to be as economical in our expenditure as possible, without injury to the just claims of the poor. We will not dispose of them by tender, for experience has amply proved the cruelty of that system; nor will we engage a gentleman in private practice, who cannot possibly attend to his own interests and those of our poor; but we will engage the entire services of a competent person, at a fixed salary. Now it is well known that the advantages of having the charge of an hospital and dispensary practice are invaluable to a talented young man, who is zealous in the acquisition of professional knowledge, and we shall, therefore, be always sure of having a choice. If we should, unfortunately, choose a man of little talent and ambition, and we fix the salary high enough to be an inducement to such a character, we should, very probably, be saddled with him for life. But if, on the contrary, we fix it so low, that, although it shall be sufficient for the wants of a young man, whose main object is to make the best use of his time in maturing his knowledge and acquiring that decision of character which is so essential to the success of a medical man, it shall not be sufficient to prevent the acquisition of knowledge from being the chief inducement, we shall be more likely to obtain the services of such a man as we want."

I can assure you, Sir, that this situation is not thought inferior either to that of the County Hospital, where the salary is 150*l.* per annum, with board and lodging, or that of the Town Dispensary, where the salary is 120*l.*, with lodging, and, I believe, apprentice fees; but, on the contrary, it has been most generally the case, that the young men who have occupied the parochial situation would not have exchanged places with either of the others, well knowing the great superiority of this institution over the others, and the estimation in which it is held by the respectable inhabitants of the town. These remarks apply more particularly to the institution before the formation of the Union. *Since* that event the work has been so much augmented, contrary to expectation, that it becomes a question, not so much whether or not the *salary* should be increased, as whether the interests of the poor do not demand a *more efficient attendance* than one person can possibly bestow. One hundred and twenty pounds per annum, however, is certainly *not* a sufficient remuneration, and I took upon myself to recommend to the Board of Guardians, that they should provide their resident surgeon with board and lodging, in addition to his salary, and it was carried, through the perseverance of some of my friends in the Board, notwithstanding the opposition of the Poor Law Commissioners' tool, Mr. Absolute Barnett, of whose fitness for such an office you have had an opportunity of judging. You will now be better able to form an opinion of the propriety or impropriety of our conduct. We may possibly be mistaken in our views, but you will, I think, acquit us of having wilfully or knowingly contributed to the degradation of our profession. For myself I beg leave to say that I am satisfied with my own conduct in this affair.

I have now done with the strictures of THE LANCET, but I wish to avail myself of this opportunity to make a few observations on the evidence of Mr. Absolom Barnett.

*Question* 20017, by Mr. Wakley. "Had you not other old houses which were unoccupied, and in which they (the children, W. V.) could have been placed?"—*Answer*. "Mr. Barnett. Yes; but this arose all at once; there was no crowd a fortnight before they were removed into it; on Christmas-day the increase took place so rapidly."

Q. 20018. "The medical officers state that, unhappily, it had been a fruitful

source of disease; though, as you say, it continued for only a fortnight!"—*A.* "I am not surprised at the question being put; I do not subscribe to the accuracy of that report; it has been the subject of very painful discussion in Nottingham; there are statements in it which cannot be substantiated, and the book of the resident surgeon, which is in this room, will negative part of it."

*Q.* 20019. "Though it was signed by five physicians and surgeons resident in the town of Nottingham, you are of opinion that it contains some statements which cannot be substantiated!"—*A.* "Yes; that about fever, for instance."

*Q.* 20021. "I find this passage in the report of the medical officers,—'There are numerous cases of hooping-cough and fever, of which last disease several have died.' When the children were affected by fever, and hooping-cough, were they removed from the room where the sixty-five were sleeping?"—*A.* "The children with hooping-cough were not removed; it was unknown to me that there was a case of fever in the house; we never heard of one; and many questions were repeatedly put by the Board of Guardians to the resident surgeon, whether there was any infectious disease, and the answer was that there was not, except in the case of an adult, a vagrant character, that was brought into the house almost in a dying state some months ago; and I beg leave to state, that the resident medical officer's book will show that there was no fever in the nursery at that time. There was at that time one case, which Dr. Howitt stated to be a case of fever, and I apprehend the report by the gentleman who drew it up, who was a very hasty, clever man, was drawn up during a conversation, in which that inadvertence was allowed to escape, for most assuredly the Guardians or myself never heard of fever."

*Q.* 20022. "No children died of fever in that room?"—*A.* "No, nor in any other; there were several cases of death by hooping-cough and teething, and the deaths that occurred amongst the children were chiefly of children at the breast, and in those parts of the house which were best ventilated, and in which there was most air."

On this evidence, I have to remark, that the honorary officers received the thanks of the Guardians for what they were then pleased to call their "valuable report;" and not a syllable of dissent from any part of it was uttered by them, or Mr. B., until after the honorary officers had offended the Guardians, by presuming to utter a sentiment in favour of the poor, in another report, on the condition of the whole house, which the Guardians requested, in consequence of the state of the children having excited the attention of the vestry. And how is it that no notice is taken of this report in the proceedings of the Committee? Did Mr Barnett keep it from their knowledge? This report would have informed them as to the state of "those parts of the house which were best ventilated, and in which there was most air." In answer to this second report, the Guardians, by letter, told the honorary officers, that the report contained several exaggerations and misstatements. We requested the Guardians to have the courtesy to inform us what those misstatements were, but the gentlemen refused to specify them. It is true that Mr. Barnett now, and not before, objected, privately, to the statement about fever contained in the *first* report, and I explained to him the cause of the discrepancy between the resident surgeon's book and the report. I firmly believe every word in that report to be correct; and, with regard to the deaths from fever, I can only say, that I myself saw two fatal cases of fever in the children's nursery,—one of them scarcely an hour before its death, and I believe that my colleagues also saw them,—certainly Dr. Howitt did. In the first draught of the report, it was stated, that of fever "two or three had died;" but, *at the request of the resident surgeon*, it was altered to "several," as he said that there had been more than "two or three." His signature is attached to the document.

As for the books of the resident surgeon, he has complained, over and over again, that they are so complicated that, with his duties, it was impossible to keep them, and that they were full of errors. Mr. Barnett has acknowledged the justice of this complaint, and actually obtained permission from the Assistant-Commissioner to use a different system of keeping the books. Some of the children had been entered on the books as suffering from marasmus, which had been brought on by bad air, in consequence of the children having been too much crowded, notwithstanding Mr. Barnett states that they were not so until Christmas (there is nothing very extraordinary in a governor of a workhouse and a medical man differing as to the number of persons which ought to be stowed in a given space); and when the extraordinary increase took place, although, according to Mr. B., it only existed for a fortnight, which is an *error*,* it was quite sufficient to carry off these debilitated little creatures by an attack of fever. As these cases were already on the surgeon's book, no fresh entry was made.

Again; one of the cases was complicated with pneumonia, and this being the most important point to be attended to, the case

* Mr. B. says, that the crowding took place on Christmas day. The report was signed on the 19th of January, and the children were not reckoned (except by death) for a week after that date, yet Mr. B. states that the crowding existed only a fortnight.

was entered in the book as one of pneumonia. The proof that the honorary surgeons did not exaggerate, lies in the fact, that the children, under seven years of age (to which class their attention was confined), from the formation of the Union, to the time of the report, had died at the rate of twenty-three and a half per cent. per annum! Did Mr. Barnett also keep back this little fact from the knowledge of the Committee? I suppose Mr. B. was not sworn to tell the *whole* truth. I believe that this person's evidence was taken through the influence of the Poor Law Commissioners, who wished to avail themselves of his shrewdness and tact, to show how successful the Poor Law Amendment Act might be introduced into large manufacturing towns; and I strongly *suspect*, for my correspondent has only furnished me with a copy of Mr. Barnett's *medical evidence*, that it would be very desirable to hear what Mr. J. Hicklin, one of the present Guardians, and Mr. T. H. Smith, the auditor, have to say on the working of the Act in Nottingham. I am, Sir, your obedient servant,

WM. VALENTINE.

Cae Bwld, near Caernarvon,
August 18th, 1837.

*** We entirely acquit Mr. VALENTINE, and his equally respected colleagues, of a charge, if any such have been made, of having wilfully, or knowingly, contributed to the degradation of the profession; but why, we ask, did those gentlemen step forward to relieve the Poor Law Commissioners and Guardians from the responsibility which the law had justly imposed upon them, by offering to act gratuitously, as medical advisers, when, according to Mr. VALENTINE's statement, now before us, he admits that a salary of £120 per annum was not a sufficient remuneration for the medical officer whom the Guardians had appointed. On this point we are content to rest the whole of our case.

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## MALIGNANT CHOLERA!

*To the Editor of* THE LANCET.

SIR:—Although it would be undesirable to create any unnecessary alarm in the public mind, yet it seems important that the medical profession in the metropolis should be aware of the existence of a disease which should call forth their utmost vigilance and skill. For this purpose I submit to your discretion the publication of the following case, which has just fallen under my observation:—

About ten o'clock in the evening of Thursday last (the 17th inst.), Mrs. M., living in the immediate neighbourhood of the Post Office, St. Martin's le Grand, brought to me her infant, aged 13 months. The child had been quite well until within the last two hours. Since then she had appeared very poorly, and had been twice sick. No other symptoms had been observed. As the nature of the disease was not at all evident, I merely directed a few grains of ipecacuanha, to unload the stomach, to be followed by a dose of calomel, to clear the bowels. I requested the mother to come again in the morning, unless the child had recovered its usual state of health.

I had just left home, at half-past eleven on the following morning, not having received any message in the meantime, from my patient, when I was met by the mother, who anxiously requested me to go and see her child who, she feared, was dying. On entering the room, I was immediately struck with the countenance of the child, from its remarkable likeness to the physiognomy of cholera maligna, a disease which I had not seen in this neighbourhood for the last three years. The skin of the body, generally, was blue and cold. Placing my ear on the chest, I heard the crepitating and sub-crepitating rattles on both sides. The symptoms which had occurred since the preceding evening had produced no alarm until within the last two hours, when the blueness began to appear. There had been vomiting two or three times, and she had been purged six or seven times, but without cramps, convulsions, or any expression of pain. I was told that the child had passed an abundance of urine. I ordered the immediate application of mustard poultices, small doses of calomel, with the compound powder of chalk and opium, and the use of beef-tea, well-seasoned with salt, as a beverage.

It was all too late, for within a quarter of an hour the child expired.

I strongly suspected that this was a case of malignant cholera, although some of the symptoms which are usual in such cases were absent, and I had heard of no similar cases in the city. But, in order to arrive at certainty, I obtained permission of the friends to make an examination of the body, when the following appearances presented themselves. The time which has elapsed since death, was about twenty-six hours:—

*External.*—There was no rigidity of the limbs. The skin, generally, was of a livid colour, but the fingers, toes, and the posterior parts of the trunk, were of a deep purple. The features wore a rather less sunken and livid appearance than before death.

*Internal.*—1. The bladder had shrunk to

the size of a *raisin*. Of course it contained no urine.

2. The surface of the peritoneum was *almost dry*, as if it had been some time exposed to the air. The plurae were in the same condition. The pericardium contained its usual quantity of a light straw-coloured fluid.

3. The mucous surface of the small intestines was covered at intervals with *irregular patches of an eruption*, bearing some resemblance to the clusters of vesicles which appear on the skin in *herpes zoster*, and which were composed of enlarged Peyerian glands. The glands of Brunner were developed in a similar manner. The submucous tissue abounded with *small red spots of ecchymosis*. The vessels of the mucous membrane of the duodenum, jejunum, and ilium, were generally congested, but most remarkably so at the edges of the valvulæ conniventes. The stomach was distended partly with fluid, and partly with air, but it presented no appearances of disease. The descending portion of the colon was empty, and had shrunk to the size of one of the small intestines.

4. The lungs were gorged with black blood, except at the anterior and upper part of each. The *engorgement* was not sufficient to make any portion sink in water. The heart was filled on both sides with black blood, in a state of semi-coagulation, nearly as dark as tar, and of about the same consistence. The same kind of fluid filled the aorta and pulmonary artery, as well as the large veins.

5. The gall-bladder was full of bile, which presented the usual appearance. *No bile was found in the intestines*, except in those portions which had been coloured by the transudation which had taken place after death.

The fluid contained in the stomach and intestines resembled a mixture of water with ground rice, or of half-boiled gruel in which the particles of oatmeal were still visible. It was almost devoid of smell.

Up to the present time I have seen no new case of cholera, but there are several cases of diarrhœa in the neighbourhood.

I am, Sir, yours, respectively,
JOHN MANN, M.R.C.S.
Aldersgate-street,
Monday evening, Aug. 21, 1837.

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*To the Editor of* THE LANCET.

SIR:—Should you consider the accompanying case of sufficient interest to merit insertion in the pages of your Journal, it is at your service. I remain, Sir, yours, &c.
ALFRED HAMILTON.
Broad-street Buildings, Aug. 21, 1837.

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James Longhorn, aged thirty, a sailor, was keeping watch on board his ship, in the river, on Sunday night, August 13; he was walking the deck, smoking, when, it is supposed (for we could never ascertain accurately) that he either fell down, or struck himself against some object by which the pipe in his mouth was driven into the tongue and broken. He was alone in the vessel at the time of the accident, but his brother sailors state, that on the next morning there was but little appearance of blood on deck, that he made signs to them that he had pulled out three small pieces of the broken pipe. On the following day the tongue was much swollen, and he got some gargle for it; it continued getting worse, and on the afternoon of Thursday, the 17th, he was brought to the *London Hospital*.

On admission the poor fellow was in a state of threatening suffocation, with great difficulty of breathing; he had not been able to speak, and had only swallowed a small quantity of fluid since the accident occurred; the mouth was closed, and there was some swelling around the neck, particularly at the back part. On separating the jaws, the tongue was found enormously enlarged, and the dressers, Messrs. Evans and Crabb, feeling fluctuation, lanced it, and gave exit to about an ounce of purulent fluid, mixed with blood, by which the man was for a time relieved; leeches were also applied over the larynx. The symptoms, however, soon became more severe, and on my reaching the hospital at nine o'clock, the man was in a much worse condition; the difficulty of breathing was increased, and it was evident that if not relieved he would soon die from suffocation. The mouth was forcibly held open by a piece of wood, and on examining the tongue I found the opening where it had been lanced: through this a probe was passed, and about two inches down, in the substance of the tongue, it struck against some hard body. This, after some little time, I succeeded in grasping, with a long thin pair of forceps, and extracted a piece of pipe, four inches in length. Immediately after it was removed there gushed from the mouth and nostrils a most frightful torrent of dark-coloured blood, and although I instantly compressed the carotid artery, first on the right side, and then on the left also, the man was dead in little more than one minute.

On examination of the neck on the following day, we found that the pipe had entered at the right side, near the tip of the tongue, traversed its substance, obliquely, emerged on the opposite side near the root, passed just below the left tonsil, and completely through the left carotid artery and internal jugular vein, so that the tobacco-pipe had acted as a plug to the wound in those vessels, and immediately the plug was removed the fatal hæmorrhage occurred. The lungs were excessively congested, and the larynx, trachea, and bronchial tubes were very much inflamed, and loaded with a thick, bloody mucus.